How long do early career decisions follow women? The impact of industry and firm size history on the gender and motherhood wage gaps

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Abstract

We add to the gender wage gap literature by considering how characteristics of past employers are correlated with current wages and whether differences between the work histories of men and women are related to the persistent gender wage gap. Our hypothesis is that women have spent less time over the course of their careers in higher paying industries and have less job- and industry-specific human capital and that these characteristics are correlated with male-female earnings differences. Additionally, we expect that difference in the work histories between women with children and childless women might help explain the observed motherhood wage gap. We use unique administrative employer history data to conduct a standard decomposition exercise to determine the impact of differences in observable job history characteristics on the gender and motherhood wage gaps. We find that industry work history has two opposing effects on both these wage gaps. The distribution of work experience across industries contributes to increasing the wage gaps, but the share of experience spent in the industry sector of the current job works to decrease earnings differences.

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I. Introduction

Much recent discussion has centered on the fact that a gap remains between the wages of men and women, even after controlling for women's education levels, occupations, years of work experience, and current employer characteristics. Our study seeks to add to this literature by considering how characteristics of past employers are correlated with current wages and whether differences between the work histories of men and women are related to the persistent gender wage gap. Our hypothesis is that women have spent less time over the course of their careers in higher paying industries and these male-female differences in type of experience have an impact on current compensation. Hence, even when controlling for current job characteristics, women are paid less.

There is much evidence in the literature that women's labor force attachment is strongly related to fertility decisions, and it is well established that mothers earn less than non-mothers do. Much of the gender wage gap could in fact be due to fertility-related work decisions. We examine how women with children are different from women without children and expect that a similar work history story could aid in explaining the motherhood wage gap, or family gap as it is also known in the literature. Women with children may spend less time in specific, higher-paying industries for several reasons. They might choose industries and occupations with greater flexibility over higher paying jobs and might also value non-wage benefits, such as health insurance, as desirable tradeoffs for compensation.[2]

To answer these questions we consider a cohort of men and women born between 1956 and 1968 taken from the 2004 and 2008 panels of the Survey of Income and Program Participation (SIPP). Using survey job reports from 2004 and 2008, we are able to control for most of the traditional individual and current (as of the survey date) employer characteristics that influence wages. We then turn to administrative data to provide us with a lengthy employer history, extending back to when our survey respondents were in their early twenties. We measure the share of work experience spent in major industry sectors and firms of different sizes and

[2] See Felfe (2012) and Ameudo-Dorantes and Kimmel (2008).

include these summary measures in a standard decomposition exercise to determine the impact of differences in these observable characteristics on the gender and motherhood wage gaps.

While other studies have examined the impact of industry distribution and inter-industry wage differentials at a point in time on the overall gender wage gap, we take advantage of our rich employer history in order to capture not only the impact of current industry on wages but also the effect of early career industry choices. We know of no other study that considers the cumulative effect of an individual's industry-work history on mid-career earnings.

In addition to industry and firm size, we consider job tenure and create summary measures of the number of jobs individuals held in their twenties, thirties, and early forties, as well as counts of the number of jobs they held within tenure categories. Turnover across a career may be beneficial if it represents job searches that lead to better job matches and/or promotion opportunities. However, turnover can also be detrimental if it is related to the development of less firm- and industry-specific human capital that in turn is correlated with lower wage growth. Our decomposition method will allow us to investigate how men, women with children, and women without children of this cohort differ in terms of their observable tenure histories and also whether tenure is rewarded differently for the three groups.

Since our analysis involves following a specific cohort of women and men over time, we cannot shed light directly on the gender and motherhood wages gaps in the cross-section of American workers and how these wage gaps have changed over time. However, our cohort offers an interesting look at the life cycle of men and women and highlights the way in which earnings inequalities between men and women and mothers and non-mothers change as the cohort ages. Inequality may increase or decrease depending on how observable characteristics and their market return change, how labor supply changes, and how attitudes in the workplace towards women change. Since our data do not contain information about historical hours or weeks worked, we cannot fully disentangle these separate causes. Instead, we show a picture of the sum total of these effects over ages 22 to 40 and then use a decomposition approach to examine wages at the end point of our time period.

We first document that men and women and mothers and non-mothers have different work history characteristics. Men and women are distributed differently across industries at ages 25 and 40, and they begin their careers distributed differently across small and large firms,

though these differences shrink as the sample ages. Men have had more employers earlier in their careers, but by age 40, women have largely caught up to men in the number of jobs they have held. Mothers are distributed differently across industries at all ages than women without children, and as expected, they are more likely to be non-earners. Mothers and non-mothers are distributed similarly across different sized firms at younger ages, but by age 40, non-mothers are more likely to work at larger firms. We also find that mothers have, on average, held fewer jobs than non-mothers at every age.

We estimate the gender wage gap to be 0.34 log dollars, or 12% of women's average log wages.[3] Observed characteristics of our sample of men and women are able to explain approximately 40% of the gap. We find that neither firm size history nor the number of jobs held helps to explain the gender wage gap. The impact of industry history is comprised of two opposing effects: the percent of working years spent in each industry contributes to earnings differences and the percent of working years spent in one's current sector works against earnings differences. That is, if women had years-in-industry distributions similar to men, the wage gaps would shrink by 0.04 log dollars or 13%. However, if women had experience in their current job industry that was more similar to men, the wage gap would actually increase by 0.03 log dollars or 10%. This surprising effect is due to the interaction of industry at current job and lifetime industry experience. Women are in different industries than men at every age and they accumulate more experience in the industries in which they tend to work in their forties (i.e. education and healthcare) than men do in those same industries. This industry-specific experience is valuable and if women were more similar to their male co-workers and had less of this type of experience, the wage gap would increase rather than decrease. Hence, in considering the true impact of industry, it is important to consider the entire path of industry-specific experience accumulation leading to the industry of the current job and job-specific human capital. If women's entire career paths were more similar to men's, and increased experience in currently male-dominated sectors was matched more commonly with current jobs in their forties in those sectors, then this countervailing effect might vanish and closer to 50% of the wage gap would be explained by observable differences.

[3] Men's average wage for this group of SIPP respondents age 40-45 is $21.798 and women's average wage is $15.529 for a difference of $6.269, approximately 40% of women's average wage.

We estimate that the motherhood wage gap is 0.18 log dollars and find that this gap is almost entirely explained by observable characteristics, with the main contributors being education, occupation, and percentage of years spent working. Industry and firm size history also contribute to the wage gap, although the industry effects are smaller than those for the male-female wage gap.

Based on our estimates, the gender wage gap is larger in the administrative tax data than in the survey data with a difference of 0.38 log dollars, or 13.5% of the average women's wage. A higher percentage of this difference is explained by observable characteristics (43%) than for the SIPP wage, but the breakdown among contributing factors is similar. This result leads us to conclude that men's earnings may tend to be under-reported in the SIPP whereas women's earnings may be either over-reported or not under-reported to the same extent.

The rest of the paper proceeds as follows. Section II below discusses the background literature. We describe the data in Section III and present the statistical model in Section IV. Then Section V presents and discusses the results, and Section VI concludes.

II. Background Literature

Much of the recent literature on the gender wage gap has focused on trends over time, and while the gap is still present, it has narrowed significantly in the last 30 years. Using data from the Current Population Survey, the Bureau of Labor Statistics reports that in 1979, the median weekly earnings of full-time female workers were 63.5% of male workers' earnings. This ratio increased to 70% in 1989 and then to 76.3% in 1999. In the second quarter of 2013, women's weekly earnings were 81.7% of men's. When using average hourly wage rates, the gender wage gap is smaller but shows a similar trend. Both measures show a substantial gain in women's earnings relative to men, especially notable given the increase in overall earnings inequality over the time period. However, in recent years, the gap has stabilized, and women's gains have slowed.

In comparing the earnings of men and women, most studies use a human capital approach where differences in productivity between the groups are used to explain the wage gap. Statistical decomposition techniques then show how much of the gap is due to gender differences in observable characteristics and how much of the gap is unexplained. The unexplained portion

is attributable to differences in the effects of observable characteristics as well as other unobserved explanatory factors or possibly to discrimination against women. Researchers have identified several important factors that can explain a large portion of the wage gap: education, occupation, work experience, career interruptions, and industry. In their study of women aged 25 to 34 in 2000, DiNatale and Boraas (2002) show that as women have become more educated, and, indeed, have surpassed men in the number receiving bachelor's degrees (Cataldi et al., 2001), they have increased their attachment to the labor force and moved more frequently into traditionally male-dominated occupations. As a result, the gender earnings gap has narrowed significantly.

Many studies highlight the contribution of industry to explaining the gender wage differential. Sorensen (1991) and Blau and Kahn (1992a) found that changes in the gender distribution across industries accounted for between 10% and 16% of the decrease in the gender wage gap from the late 1970s to the early 1980s. O'Neill and Polachek (1993) calculated a much larger impact, estimating that between 35% and 42% of the shrinking of the gender pay gap between 1977 and 1989 was due to changes in the gender industry distribution. Using March 1988 CPS data, Fields and Wolff (1995) show that between 15% and 19% of the overall gender wage gap can be explained by differences in the distribution of men and women across industries while between 12% and 22% of the gap is accounted for by male-female differences in inter-industry wage differentials. Women who plan to have children are also more likely to choose occupations and industries that are more accommodating to time away from the labor force and working fewer hours.

The relationship between work experience, job tenure, labor force interruptions, and earnings is also well documented, and many studies have demonstrated that a large portion of the gender pay gap is due to differences in work experience between men and women.[4] O'Neill (2003) finds that actual work experience, as opposed to potential work experience, which obscures career interruptions, accounts for almost the entire explained portion of the wage gap. Other studies have explored differences in job turnover by gender, with mixed conclusions. Many of these explanations depend only on job quits or job separations, i.e., transitions to nonemployment, but Royalty (1998) argues that it is important to distinguish between job-to-job

[4] See, for example, Light and Ureta (1990), Kim and Polacheck (1994), Wellington (1993), and Eiler (1993).

and job-to-nonemployment transitions. Royalty (1998) finds that job turnover varies by gender differently for lower educated and higher educated workers, but in the end, turnover differences are not a persuasive explanation for the gender wage gap. In contrast, Erosa et al. (2002) conclude that fertility decisions lead to gender differences in turnover rates, and this has a long lasting impact on wages. They estimate that nearly the entire gender wage gap that is attributed to differences in experience by Blau and Kahn (2000) is due to differences in job turnover between men and women. Additionally, Erosa et al. (2002) note that losses of job-specific human capital (due to career interruptions) cannot explain the motherhood wage gap, because women who interrupt their careers when giving birth are self-selected from those with low job tenure. In our model, we address these possibilities by including measures of experience, job tenure, and job turnover in our analysis.

Most researchers have estimated the motherhood wage gap to be in the range of 5 to 20 percent, and there is some evidence that the gap has increased in recent years.[5] If fertility-related work choices are responsible for much of the gender wage gap, then similar explanatory factors can explain the gap in pay between mothers and childless women. In particular, loss in human capital during time out of the labor force after having children and choice of sector and job have been found to contribute to the motherhood wage gap. Other reasons for the pay gap have also been explored in the literature: unobserved heterogeneity, institutional features of the labor market, compensating wage differentials, and discrimination.

Differences in education, occupation, and work experience contribute to the difference in earnings, but as Lips (2013) points out, there are limits to this approach. Lips (2013) argues that the circumstances and background in which men's and women's pay are compared are not equal, and so the comparison of wages is not necessarily fair. The gender pay gap varies depending on the unit of measurement (median hourly pay, median weekly earnings, or median annual income), and each of these measures has its drawbacks. Many workers' wages are not necessarily hourly wage rates, e.g., if a worker is salaried or works overtime. When a worker is salaried, weekly hours can range widely. Furthermore, an inaccurate comparison may occur when workers are compensated according to tasks completed rather than time spent. Hourly wage rates do not consider the cost or impact of retirement and healthcare plans or other types of

[5] See Waldfogel (1998).

compensation including bonuses and stock options. There is evidence that women, especially mothers, may value non-wage benefits more than men do and hence take a greater proportion of their compensation in the form of benefits, including family-friendly work polices such as flexible schedules and paid maternity leave.[6]

While it is important to keep these criticisms in mind, much can still be gained from analyzing the impact of observables on the gender wage gap. Our data offers a unique opportunity to analyze the impact of several important observable job history characteristics that have not been studied previously, namely experience by industry and firm size.

III. Data Description

The initial sample of individuals used in this analysis comes from the 2004 and 2008 SIPP panels.[7] Our sample includes respondents who were no older than 22 in 1978, had valid linked administrative data, were at least 40 years old by the time of the SIPP panel, answered the marital and fertility history questions in the SIPP, reported holding a job during the time period covered by the SIPP panel, and whose SIPP-reported job was matched to the employer name on their W-2. Thus, our sample has individuals from the 2004 SIPP panel born between 1956 and 1964 and from the 2008 panel born between 1956 and 1968. From the SIPP, we know the respondent's level of education, number of children, marital history up to three marriages, and current job characteristics: industry, occupation, union status, job tenure, firm size, multi-unit status of the firm, and type of firm (for-profit, non-profit, local, state, or federal government). We use reported start and end dates, monthly earnings, and usual weekly hours worked (reported once every four months) to calculate an annualized hourly wage rate equal to the sum of all monthly earnings in the first reported year of the job divided by the sum of total hours worked at the job each month across all months for the same year. When SIPP respondents held more than one job during the course of the panel, we choose jobs from the earliest year of reported employment and among jobs in that year, we choose the one with the longest tenure.

[6] See, for example, Goldin (2014) and Waldfogel (1998).
[7] The SIPP samples are not designed to be representative of the U.S. population without the use of appropriate sampling weights; therefore, results from this sample are not representative of the U.S. population. All estimates and results presented here are unweighted.

To obtain work history information, we utilize linked W-2 tax form information provided to the Census Bureau by the Social Security Administration (SSA). The W-2 records provide earnings in each year from 1978 to 2009, broken down by employers. The W-2s also provide an employer identification number (EIN) which in turn links to the Business Register, the master list of all businesses operating in the United States, maintained by the Census Bureau as the sampling frame for firm-level surveys. Hence, the W-2 records provide the basic history of how many years an individual has worked and a list of employers, and the Business Register provides characteristics of those employers including industry, firm size, and whether the firm was a multi- or single-unit business.

Industry classification changes over time, both due to changes in what the firm produces and also due to changes in standard industry codes. During the time period covered by our data (1978-2009), the United States switched from the Standard Industrial Classification (SIC) system to the North American Industrial Classification System (NAICS) as the official industry classification system. Thus, in order to accurately track the flow of workers between industries, we use a longitudinally edited form of the Business Register (BR) called the Longitudinal Business Database (LBD). This file contains a 2002 NAICS code for most establishment-year pairs as well as a measure of firm age. [8]

Of job-year observations that match to the LBD or BR, 50% of jobs over this time period are with single-unit firms. These companies have a single industry classification and generally operate in only one location. For these types of employers, assigning the SIPP respondent an industry code is straightforward. However, the remaining jobs are with multi-unit firms, meaning the firm operates separate units in multiple locations, and these units may or may not be in the same major NAICS sector. In our data, 27% of firms are multi-units but only operate in one

[8] There are some W-2 jobs that do not match to the LBD. For these cases, we try to match to the annual Business Register files. If matching to the Business Register is successful, we then convert the reported industry to a 2002 NAICS code using our own approximate crosswalk of major SIC and NAICS sectors. If we cannot match to either the annual BR files or the LBD, we assign a NAICS sector based on the job type code found on the W-2 record. The two job types that do not match to the BR and LBD are self-employment and local government. Overall, between 1978 and 2009, there are 515,751 job-year observations for the SIPP respondents in our sample, of which 93.77% match to the LBD or BR, 3.48% are self-employment, 1.04% are state and local government, and 1.71% are missing. These missing values are due to W-2 reports that are coded as regular employment by SSA but still do not match to Census LBD-BR data. We code these as having a missing NAICS sector.

major NAICS sector while 23% are multi-units that operate in at least 2 different major NAICS sectors. For these jobs, it is not possible to directly assign an industry code to the worker since the W-2 gives only the company tax identifier and not an actual establishment identifier. In these cases, we create a weight for each NAICS sector found within a company. The weight for a given sector is equal to the percentage of total company employment working at establishments in that sector. Weights sum to one across all the NAICS sectors present in a given company.[9]

Our goal is to use the job-level data to create historical summary measures of how many years an individual spent in each different NAICS sector and at firms of different sizes. To accomplish this, after merging our master list of jobs from the DER to the LBD and BR, we next subset to job-year observations between age 22 and the first full year of the SIPP panel and sum the number of years spent in each sector and in each firm size category. If an individual works at a company with two NAICS sectors, we give each sector credit for a fraction of the year corresponding to the employment weight. For example, if an individual works at a multi-unit company with establishments in both the manufacturing and wholesale trade sectors, where the manufacturing sector makes up 60% of employment and hence has a weight of 0.6, we add 0.6 to the total years spent in manufacturing and 0.4 to the total years spent in wholesale trade. If an individual holds more than one job in a year, we weight each job by the percentage of that year's total earnings associated with the job. To continue the example above, if the person had a second job at a single-unit company in retail trade, and this job was responsible for 20% of the total earnings from that year, we would add .20 to total years spent in retail trade and (.8*.6)=.48 to years spent in manufacturing and (.8*.4)=.32 to years spent in wholesale trade. Thus, the total years spent in each NAICS sector is a weighted sum and reflects both the job industry composition of employment and the individual industry composition of earnings within a year.[10]

[9] For .24% of jobs that match the LBD/BR, the industry code is missing on the Census firm database. We create a "missing" sector for these cases and the cases where the EIN is not found in the LBD and BR.

[10] For 2.79% of firms, even after matching to a valid NAICS sector from the BR/LBD, there is zero total employment reported. For these cases, if the firm is a single unit or a multi-unit with only one sector, we give full weight to the non-missing NAICS sector. If the firm is a multi-unit with other sectors that have positive total employment, we give zero weight to the sector with missing employment. If none of the multiple sectors have

We believe that this method of counting time spent working in different industries captures differences in employers that are important. Having experience in a manufacturing/retail giant is different from having experience in a small manufacturing-only firm. Our ultimate goal is to compare differences between men and women, and since we are assigning NAICS sectors consistently for men and women, we are able to do a meaningful analysis of gender differences, despite the fact that our industry assignment method cannot place every job in a single NAICS sector.

In addition to summing the number of years spent in each major NAICS sector, we also count the number of years an individual is employed at firms of various sizes. We categorize all firms into eight groups and count years for each group. We use EIN-level employment totals so we do not have to weight within a firm as we did with NAICS sector. We do, however, weight by earnings in the same manner as we did for industry. Each job counts as a percentage of the year based on the ratio of job annual earnings to total annual earnings. In a similar manner we utilize the firm age information from the LBD to count the number of years a worker spent at young firms (age 0-5) and firms that had survived past the first five years. Jobs that did not match to the LBD were coded as missing firm age.

After calculating total number of years in each NAICS sector, firm size category, and firm age group, we create a count of total years with positive earnings. To handle the different lengths of time available to accumulate work experience due to differences in birth years, we create a percentage of years with positive earnings as the ratio of years with positive earnings to total years between age 22 and the first full year of the SIPP panel. We then create percentages of time spent in each industry category as the ratio of years in the industry to years with positive earnings. The industry percentages sum to one and describe the distribution of time across industries in the years when there were positive earnings. We use the same method to calculate percentage of years in each firm size and firm age category.

positive employment reports, we then set the NAICS sector to missing since we cannot assign weights across different sectors without employment totals.

Finally, we create a set of 14 indicators that track how many jobs a person has held by the beginning of the SIPP. The first indicator is set to one for every person who has ever held a job by the beginning of the SIPP. The second indicator marks those who ever held at least two jobs by the beginning of the SIPP panel, the third indicator those who held at least three jobs, and so on until fourteen or more jobs. We include this set of indicators in our regression to allow for the cumulative effect of holding each successive job. In addition, we count the number of jobs with one year, two years, three to five years, six to nine years, and ten or more years of tenure. Similarly, to the total job count, we categorize people into groups based on the total number of jobs of varying tenure lengths. This allows us to distinguish between people who have many short-term jobs and people who have a few long-term jobs.

Our linked data provide two potential sources of earnings data. The first comes from self-reports to the SIPP survey and the second comes from W-2 information contained in the DER. We employed a statistical name-matching program to probabilistically link the SIPP-reported employer name of the job chosen for our analysis to the business names linked to the respondent's W-2 records from the BR.[11] This was particularly important for SIPP respondents with two or more W-2 jobs in a given year but the matching was performed for all SIPP respondents in order to be confident that the we were comparing survey and tax data for the same job. Thus, when we look at wage rates for the job held during the SIPP panel, we can create a

[11] This program was developed collaboratively by Census Bureau staff across several areas, including the Center for Economic Studies and the Social, Economic, and Housing Statistics Division. This process involves several steps. First, we clerically reviewed on a case-by-case basis the SIPP-reported employers of 500 random SIPP respondents against the employer names linked to their W-2 records. The clerical review determined whether a SIPP-reported employer name was a match compared to the employer name linked to a given W-2 record. Then, we standardized all of the SIPP-reported employer names and W-2-linked employer names using a standardizer and parser software. This prepares the employer names to be processed through a probabilistic comparator. For example, the word "university" would be standardized to "univ" and the word "incorporated" would be standardized to "inc." Furthermore, all punctuation and symbols are removed. After the names have been standardized and parsed, the names are passed through a Jaro-Winkler algorithm comparator. The Jaro-Winkler algorithm comparator produces a probability score that determines how similar the SIPP-reported employer name and W-2-linked employer name are. Finally, we employ the Census Bureau-developed name matcher programs to probabilistically determine whether the SIPP-reported employer name matches the W-2-linked employer name. The name matcher programs use a logistic regression model to predict the probability of any two pairs of records being a match and then declare records above a certain probability threshold to in fact be matches. In the logistic regression models, the name matcher programs use the clerically reviewed data as a "truth" set and the Jaro-Winkler comparator probability scores as predictors for whether the SIPP employer name matched the W-2 name.

survey-based wage and an administrative-based wage utilizing the two different earnings reports matched to the same hours and weeks worked measures.

In order to make our results using the SIPP and the DER comparable, we restrict our sample to only jobs that are able to be linked using the probabilistic matching process described above. That is, estimates using SIPP wages and estimates using DER wages are based on the same sample of 15,208 individuals with SIPP-reported jobs that are matched to W-2s. We begin by analyzing the SIPP wage rate and then repeat the decomposition using the DER wage rate. This allows us to compare both the gender wage gap and the motherhood wage gap in survey data to that found in administrative data and to see if our work history variables are differentially related to the wage depending on the source.

IV. Statistical Model

We employ a standard Blinder-Oaxaca decomposition method to analyze the impact of differences in work histories on the wage differentials of middle-aged workers. This decomposition method divides differences in average wages into two components: a component that is "explained" by observable differences in the characteristics of either men and women or mothers and non-mothers and an "unexplained" residual component that cannot be accounted for by such differences. The "unexplained" component is also referred to as the coefficients effect since it includes group differences in the effects of the independent variables. Because the "unexplained" component also includes the effects of group difference in unobservable characteristics, it is sometimes used as a measure of discrimination. The "unexplained" component can also Our measures of industry, firm size, and job holding histories will control for a type of the "explained" component that has not been taken into account in previous studies and which may help explain part of the wage difference previously attributed to the "unexplained" component or discrimination.

More formally, we will decompose differences in the following manner:

$$\overline{Y}_1 - \overline{Y}_2 = \left(\overline{X}_1 - \overline{X}_2\right)' \hat{\beta}^* + \overline{X}_1' \left(\hat{\beta}_1 - \hat{\beta}^*\right) + \overline{X}_2' \left(\hat{\beta}^* - \hat{\beta}_2\right), \text{ where}$$

$$\overline{Y}_1 = average\ group\ 1\ wage,$$

$$\overline{Y}_2 = average\ group\ 2\ wage,$$

$$\overline{X}_1 = average\ characteristics\ of\ group\ 1,$$

$$\overline{X}_2 = average\ characteristics\ of\ group\ 2,$$

$$\hat{\beta}_1 = coefficient\ estimate\ relating\ characteristics\ of\ group\ 1\ to\ wage,$$

$$\hat{\beta}_2 = coefficient\ estimate\ relating\ characteristics\ of\ group\ 2\ to\ wage,\ \text{and}$$

$$\hat{\beta}^* = nondiscriminatory\ coefficient\ estimate\ vector.$$

The first term of the decomposition equation is the part of the wage differential that is explained by group differences in predictors, and the final two terms comprise the unexplained component. The nondiscriminatory coefficient estimate vector, $\hat{\beta}^*$, is obtained from a pooled regression over both groups.

In our first set of results, group 1 and group 2 denote men and women, respectively, and in our second set of results, group 1 and group 2 refer to non-mothers and mothers. In addition to characteristics of past employers, we also include education (no high school, high school degree, some college, college degree, graduate degree), race (black, non-black), age, an indicator to specify the SIPP panel (2004, 2008), percent of years between age 22 and the first full year of the SIPP panel with positive earnings, and characteristics of current job including major NAICS sector, major occupation group, union status, years of job tenure, multi/single unit firm, firm size category, and job type (private for profit, private non-profit, local, state, and federal government) as reported in the SIPP. Summary statistics for all the regression control variables are reported in Appendix Tables 1A-1C for men versus women and in Appendix Tables 2A-2C for non-mothers versus mothers.

For categorical variables, there is concern about the results varying depending on which category is chosen as the base case. We address this issue by using the deviation contrast transform as suggested by Jan (2008). With this method, a categorical variable is expressed as a series of 0/1 indicators and after the group regressions are run, the coefficients on these indicators are constrained to sum to zero. This essentially expresses the effects as deviations from the grand mean, which makes it irrelevant which category is chosen as the base case. After such a transformation, the results of the decomposition will not change regardless of the base case. For our continuous variables, we rely on the fact that there is a natural zero point for each variable (i.e. zero years of experience).

V. Results

We begin by examining the distribution of workers from our sample across industries, firm size categories, and job count categories at ages 25 and 40 by gender. These summary measures will provide two snapshots of the career histories of workers in our sample and will provide some intuition for the differences between men and women and non-mothers and mothers over time. We then proceed to the regression decomposition analysis in order to show how the cumulative years spent working for employers with particular characteristics are related to the gender wage gap.

A. Summary measures of work histories

Table 1a shows the percentage of men and women in each major NAICS sector, plus the percentage who are working for state and local government (other government), self-employed, not employed, missing industry coding, or working for a firm designated as foreign in the Business Register. Already at age 25 there are significant differences in how the jobs held by women are distributed across industries compared to men. At age 25, a higher percentage of men work in construction, manufacturing, agriculture, mining, utilities, wholesale trade, transportation/warehousing, administrative support/waste management, public administration, and other government than women. A higher percentage of women work in the retail trade, professional/scientific/technical, education, healthcare, finance/insurance, and accommodation/food sectors relative to men. Men are also more likely to be self-employed whereas women are more likely to be non-earners. The largest differences between employed men and women are manufacturing and construction (combined 14.5 percentage points higher for men) and finance and insurance, healthcare, and accommodations and food services (combined 15.4 percentage points higher for women). Only five NAICS sectors have no significant difference between the percentage of men and women – information, real estate, management of companies, arts, and other services.

These differences are remarkably stable over time. Of the 11 sectors with higher percentages of men relative to women at age 25, all but one continue to have higher relative percentages at age 40. Similar patterns hold for the industries with higher percentages of women relative to men at age 25. Only one industry of the original seven saw convergence by age 40

between the percentage of men and women.[12] From this table, we conclude it is not the case that men and women begin their careers in similar types of jobs and then diverge as they age. Already at age 25, men are concentrated in the industries of construction, manufacturing, and wholesale trade while women are working in healthcare, banks, and education. There is not much evidence of convergence between men and women up to age 40. Rather differences in the manufacturing, wholesale trade, healthcare, and education continue to grow over time. Men and women make different career choices at young ages and these differences follow them into middle age.

We perform analogous industry distribution calculations for mothers and non-mothers. Table 1b displays these results. At age 25, the main difference between mothers and non-mothers is in employment. Sixteen percent of mothers are non-earners at age 25 compared to only 6.5% of non-mothers. Non-mothers are more likely to be in traditional low-skilled industries such as accommodations and food, administrative support and waste management, retail trade, and other services. However, these differences are not large and shrink over time. In contrast, differences emerge by age 40 in industries that have a higher percentage of skilled occupations. Non-mothers are more likely to work in finance and insurance, self-employment, professional, scientific and technical, utilities, and real estate. Mothers are more likely to work in education and health care. Thus we see that non-mothers spend more time gaining work experience early in their careers and end up in different industries by age 40 than mothers. However, it is still true that non-mothers and mothers have industry patterns over time that are closer to each other than to the patterns of men.

We next consider how men and women move between firms of different sizes as they age. In Table 2a, we categorize jobs for people who are not self-employed by the number of employees at the firm and show the distribution of men and women across firms of different

[12] In four of these 11 sectors, the relative differences have grown (rows in bold in Table 1). In another three, the differences have lessened somewhat but remain statistically significant (rows shaded gray in Table 1). Only in Administrative Support and Waste Management is the difference statistically insignificant at age 40 (row in italics). Of the sectors with higher percentages of women at age 25, three sectors saw the differences between men and women grow by age 40 (rows in bold) while for another three, the differences lessened by age 40 but remained statistically different from each other (rows shaded gray). Professional, scientific, and technical services was the only industry to have the difference become insignificant by age 40 (row in italics).

sizes.[13] As seen in the third column, men and women begin their careers distributed differently across small and large firms. At age 25, a higher percentage of men work for smaller firms (those with fewer than 50 employees) whereas a higher percentage of women work for large firms (those with 101-200 employees or more than 500 employees). However, as individuals in our sample age, both men and women move into larger firms and fewer of the differences in firm size categories are statistically significant. In particular, by age 40 similar percentages of men and women work for the very smallest and the very largest firms. Thus with respect to firm size, the story is one of initial differences and convergence over time.

Table 2b shows the analogous results for mothers and non-mothers. At age 25, women do not show any significant differences by motherhood status in their distributions across firms of different sizes. By age 40, there is a slightly higher percentage of mothers in firms with 201-500 employees, while non-mothers are more likely to be in the largest firms with over 1000 employees. Among women, the patterns reflect initial similarities which then slightly diverge based on the eventual life outcome of having a child or not.

We next turn to a description of the cumulative number of jobs held by men and women and mothers and non-mothers as they move through their adult working years. We present percentages of men and women in job count categories in Table 3a. At age 25, a higher percentage of women have held no jobs than men whereas a higher percentage of men have held between five and eight jobs. Thus, men have more employers fairly early in their careers. By age 40, the job counts for women have largely caught up with those for men, with the exception that

[13] For some percentage of the sample at each age, firm size is unknown. This happens for two reasons. First, the EIN from the individual's W-2 record may not match to the BR/LBD, in which case we do not know anything about the characteristics of the employer. Second, even if the EIN is found in the master list of companies, sometimes employment totals are missing. When combined, these cases comprise 10% of jobs for both men and women at age 25, but these percentages fall by age 40 as the number of EINs that match to the BR/LBD goes up over time. Fortunately, there are no statistically significant differences between the missing rates for men and women. The missing rates for mothers and non-mothers show a similar pattern, and again, there is not a significant difference between missing rates for the two groups.

the left tail of the distribution, i.e. those with many jobs, is still larger for men. Thus, as with firm size, there are fewer significant male-female differences as the cohort ages.

Analogous results for mothers and non-mothers are presented in Table 3b. Here the differences are more striking. At age 25, mothers have held fewer jobs than non-mothers. Almost half of mothers have held two or less jobs by age 25 compared to only 38% of non-mothers. This pattern persists through age 40. Mothers are more likely to be in the under six jobs segment of the distribution while non-mothers are more likely to be in the left-tail of the distribution with over 14 different jobs by age 40. We conclude that mothers do not catch up to non-mothers in terms of jobs held over their careers.

In Table 4a we turn to gender differences in wages over time. Unfortunately, we have labor supply information for our sample members only at the time they were interviewed by the SIPP. We do have earnings information for every year from age 22 until the time of the SIPP interview from the historical W-2 records. We use this information to calculate an annual hourly wage by dividing total DER earnings in real 2009 dollars by 1750 total annual hours, which assumes that everyone worked 50 weeks a year, 35 hours a week. The "DER" column in Table 4a, Panel A reports the difference between men and women in the average annualized wage at age 25, 30, and 40 (differences are calculated by subtracting the men's average wage from the average for women). This difference rises over time, as shown in the age 30-25 and 40-30 difference-in-difference calculations, possibly due in part to women decreasing their hours relative to men during their thirties.

In the "SIPP" column in Panel A, we do the same calculation at age 40 except we replace DER earnings with total SIPP reported earnings (also in real 2009 dollars) from the first year a job was observed during the survey time period. The difference between the average annualized wage narrows when SIPP earnings are used, falling by just over $2.50/hour. This is consistent with findings from other papers about the relationship between the SIPP and the DER data sources. For example, Abowd and Stinson (2013) find that SIPP earnings imputations lower men's earnings relative to the DER and raise women's earnings, which would serve to decrease the gap.

In Panel B in Table 4a, we replace our assumed total hours of 1750 with total SIPP reported hours from the first year a job was observed during the survey time period, summed

across all jobs for the year. The difference between men and women falls for both data sources but the difference between the sources remains similar. Thus when we take account of hours more accurately, the gender gap narrows.

Finally, in Panel C we calculate the wage for a particular SIPP job instead of using total earnings and hours from all jobs in the year. We choose the SIPP job with the longest tenure from the first year a job was observed during the survey time period. The difference between the average male and female job-specific wage is lower than for total earnings. Due to our linking at both the person and the job-level, we are able to calculate this wage using both SIPP and DER earnings and find that the difference between the sources has widened to $4.50. Since we use SIPP reported hours and weeks worked to calculate both the DER and SIPP job-specific wages, this difference is entirely driven by differences in survey-reported earnings and administrative tax reports of earnings. Utilizing the tax data gives a larger estimate of the raw wage gap. Due to the significant differences between the two data sources, we do the regression analysis separately for the DER job-specific wage and the SIPP job-specific wage.

Table 4b presents differences in wages for mothers and non-mothers. In panel A, using the average annualized wage (difference are calculated by subtracting the average non-mother's wage from the average for mothers), we see a similar pattern to the differences between men and women. The motherhood wage gap increases with age (diff-in-diff between ages) but decreases as we take account of hours more accurately (diff-in-diff between wage types at age 40). Unlike the male-female wage gap, however, the raw motherhood wage gap is not significantly different in the DER versus the SIPP (difference between sources).

B. Regression Decomposition results

1. SIPP Male –Female Wage Gap

The results of the regression decomposition models for men and women using SIPP wages are presented in Tables 5, 6, and 7.[14] All regression results are reported in log dollars in the tables. As discussed in Section III, we limit our sample to individuals whose survey job

[14] Our Oaxaca decomposition model is akin to a standard Mincer wage model where an interaction term is included for whether earlier experience is in the current industry at middle age, and the experience coefficient differs by industry of employment.

matched to an administrative job. In Table 5, Panel A we present the overall decomposition results on the differences in SIPP-reported wages between men and women. The model 1 in column 1 includes only controls for the percentage of working age years with positive earnings, the percentage of working years spent in each industry, and the percentage of working years spent in the industry of the current SIPP job (referred to as industry history and current industry history controls, respectively). Model 2 adds percentage of years in different firm size categories, Model 3 adds controls for how many jobs the individual has held by the beginning of the SIPP panel, Model 4 replaces job count controls with controls for how many jobs in different tenure categories the individual has held by the start of the SIPP panel, and Model 5 adds controls for percentage of years spent in different firm age categories. Across all models, men's wages are 0.34 log dollars higher compared to women. In these models, about 0.13 log dollars of the difference in wages can be explained by the predictors in the model. This can be interpreted as the amount that women's wages would increase if they had the same characteristics as men. Thus, 38% of the gender gap can be explained by differences in observable characteristics.

In Table 6, Panel A we examine the relationship between current SIPP job characteristics and the gender wage gap. For all of the model specifications, union status, duration of current SIPP job, firm size of current employer, job type (e.g., private vs. public), and self-reported industry of current job all contribute to the wage gap. The coefficients on each of these categories are positive and therefore can be interpreted in this way: if women were similarly distributed to men in these categories, the wage gap would decrease. The largest explanatory factor is the industry of current job, which accounts for about 0.06 log dollars of the wage gap, or about 42% of the explained difference.

Table 7, Panel A shows in more detail the contribution that the different work history variables make to the gender wage gap. In model 1, we see that the percentage of years with positive earnings is positively associated with the wage gap, suggesting that if women had a higher percentage of years with positive earnings, then the gender wage gap would decrease. Similarly, the percentage of years spent in different industries has a positive impact on the wage gap, meaning that if women looked more like men in this regard, the wage gap would decrease. However, the percent of years spent in one's current sector has a negative impact on the wage gap, so if women were more similar to men in this way, the gap would actually worsen. The

other model specifications shown in columns 2-5 of Table 5c, Panel A include the additional work history characteristics of years in firms of different sizes, jobs counts, job counts by tenure, and firm age, but none of these effects make a significant contribution to explaining the wage gap.

2. SIPP Non-Mother – Mother Wage Gap

We next examine the same results for the comparison of non-mothers to mothers. In Table 5, Panel B we report the difference in average wages between these two groups of women and the portion that is explained and unexplained. At 0.18 log dollars, the wage gap is much smaller than for women compared to men. Also observed characteristics account for almost all of the wage gap, with the unexplained portion not being significantly different from zero. In Table 6, Panel B, we see that, similar to the male-female comparison, SIPP-reported industry and job duration explain significant portions of the wage gap. However, unlike Panel A, there is no significant effect of union status while there is a large and significant effect of occupation. Finally, in Table 7, Panel B we see that the industry history controls have a similar relationship to what we saw for men and women. General industry history patterns increase the wage gap, whereas history in one's current industry decreases the wage gap. Unlike with the male-female comparison, we see a positive contribution of firm size history to the non-mother/mother wage gap. If mothers worked in firms of sizes more similar to non-mothers over the course of their careers, the wage gap would decrease by .006 log dollars.

3. DER Male – Female Wage

We repeat this decomposition analysis using the same set of covariates but with the DER wage rate as the dependent variable. We summarize our findings and compare DER wage results to SIPP wage results for Model 5 in Table 8.[15] As shown in DER column of Table 8, women earn on average about 0.38 log dollars less than men when using the DER wage. This is larger than the SIPP wage gap of about 0.34 log dollars. In these models, about 0.17 log dollars (or about 44%) of the difference in wages is explained by differences in observable characteristics.

[15] Detailed results from the DER wage analysis analogous to Tables 5-7 for the SIPP wage analysis are included as Appendix Tables 3-5. We include the same sample restrictions as for our analysis of the SIPP-reported wage gap.

Thus, a larger portion of the wage gap can be explained by things that are observably different between men and women when using the DER as compared to the SIPP.

Observed SIPP job characteristics (industry SIPP job and other SIPP job characteristics combined) account for 25.2% of the SIPP wage gap and 29.7% of the DER wage gap. The industry history variables (percentage of years in industry sectors and percentage of years in industry of current job) account for on net 3% of the SIPP wage gap and 2% of the DER wage gap, while other work history variables do not have any significant correlation with either the SIPP or the DER wage gap.

4. DER Non-Mother – Mother Wage

Like the male-female wage gap, the non-mother – mother wage gap is larger in the DER than in the SIPP. While a higher percentage of the gap is explained by observable characteristics, as shown in Table 9, the difference is small. Industry of the SIPP job, work history summary measures besides industry, and percentage of years working all explain slightly larger percentages of the gap in the DER than in the SIPP. Overall, though, the comparison between the SIPP and DER columns of Table 9 shows great similarity between the wage gap estimates and explained portions.

Much larger differences exist when comparing the gender wage gap to the motherhood wage gap using Tables 8 and 9. For men compared to women, education does not significantly contribute to explaining the wage gap. However, for non-mothers versus mothers, education explains 32-33% of the difference in wages. Other factors which contribute to the motherhood wage gap differently than to the gender wage gap include other SIPP job characteristics (especially occupation as shown in Table 6), current industry and industry history, and percentage of years spent working. Thus for women who are mothers, lower average wages relative to other women seem to be driven by differences in schooling, occupation, and labor force participation choices. In comparison, lower average wages for women versus men are more related to differences in the industry of the current job and accumulated past experience in different industries.

5. Total impact of employer characteristics work history measures.

The overall impact of the work history summations by firm characteristics as reported in Tables 8 and 9 for both SIPP and DER wages is very small. This is because the percentage of working years in each NAICS sector and percentage of working years in the current job NAICS sector have similar magnitudes but opposite signs. To clarify how these summary effects are estimated, we present results in Table 10 that show more detailed results from the wage regressions run as part of the Oxaca-Blinder decomposition exercise (reported in Tables 5-7). Columns 1 and 2 are coefficients on percentage of years spent working in each industry and percentage of years spent working in each industry if current SIPP job is in that industry from the pooled SIPP regression that included wage observations for men and women. Columns 3 and 4 are differences between men and women in the average percentage of years spent working in each industry, both total and conditional on currently working in that industry. Finally columns 5 and 6 report the amount of the wage gap explained by past experience in each industry, again total and conditional on currently working in that industry. These results show that men have accumulated a higher percentage of their experience in manufacturing, construction, wholesale trade, and information (column 3) and the returns to experience in these sectors (column 1) are higher overall than the returns to education, healthcare, FIRE, and food and accommodations where women have accumulated a higher percentage of experience. The total summation of the industry-specific wage gap effects reported in column 5 is equal to the "percent of years in industry sectors" value reported in the first column of Table 8.

Likewise, we see that women who are currently working in real estate, education, and food and accommodations have higher percentages of their accumulated experience in these sectors compared to men who are also working in these sectors (column 4 Table 10). The additional return to experience in these sectors for those currently employed at jobs in these sectors is much higher relative to the additional returns to experience in male-dominated industries for those employed there. For example, the additional return to a percentage point of experience in education if the individual is currently employed in the education sector is .5 compared to .05 for the additional return to construction experience if the individual is currently employed there (column 2 Table 10). Thus if we hold the distribution of women's jobs across industry sectors at ages 40-45 constant, changing the type of past experience will not necessarily raise women's wages relative to men's wages.

To better understand the relationship between past experience and industry of an individual's current job, consider the simplified version of the explained portion of the wage gap equation where there are only two industries: education and construction. Explained differences in the wage gap are related to the industry of the current SIPP job (represented by zero/one indicators Y), overall experience in each industry sector (represented by continuous variables X that are expressed as a percentage of total years worked), and experience in the industry sector of current employment (represented by XY and also expressed as a percentage of total years worked). Hence, the portion of the wage gap explained by observed differences in current and historical job industries between men and women can be written as follows, where ED represents education and C represents construction:

$$wage\ gap\ due\ to\ observable\ industry\ differences$$
$$= \delta^*_{ED}\left(\bar{Y}^m_{ED} - \bar{Y}^f_{ED}\right) + \delta^*_C\left(\bar{Y}^m_C - \bar{Y}^f_C\right) + \beta^*_{ED}\left(\bar{X}^m_{ED} - \bar{X}^f_{ED}\right) + \beta^*_C\left(\bar{X}^m_C - \bar{X}^f_C\right)$$
$$+ \gamma^*_{ED}\left(\overline{XY}^m_{ED} - \overline{XY}^f_{ED}\right) + \gamma^*_C\left(\overline{XY}^m_C - \overline{XY}^f_C\right)$$

Now consider the thought experiment where the average percentage of years spent working in the education sector drops five percentage points for women and the average percentage of years spent working in the construction sector rises five percentage points. In other words, women shift their working time such that they have more jobs in construction and fewer in education, conditional on the number of years worked. However, the industry distribution of women's current jobs at age 40 does not change nor do men change their distribution of working time across industries. The average percentage of years worked stays constant in both sectors for men. The wage gap attributable to differences in general experience in the education and construction sectors is

$$wage\ gap\ due\ to\ general\ industry\ history\ differences$$
$$= \beta^*_{ED}\left(\bar{X}^m_{ED} - \bar{X}^f_{ED}\right) + \beta^*_C\left(\bar{X}^m_C - \bar{X}^f_C\right)$$

The change in the wage gap due to a change in $\bar{X}^f_{ED}$ and $\bar{X}^f_C$ depends on the relative return to experience in each of these sectors. As shown in Table 10, the return to percentage of years of experience in construction (.43) is higher than the return to percentage of years of experience in

education (not significantly different from zero). Thus as we shift women's experience towards construction, the wage gap will narrow by the following amount:

$$change\ in\ the\ wage\ gap\ due\ to\ changes\ in\ general\ industry\ history$$

$$-\left(\beta^*_{ED} * \Delta\bar{X}^f_{ED}\right) - \left(\beta^*_C * \Delta\bar{X}^f_C\right) = -(0 * -.05) - (.43 * .05) = -.022$$

Thus, a five percentage point shift in relative sectoral experience would decrease the wage gap by .022 log dollars.

However, there is a countervailing effect as well. Since neither $\left(\bar{Y}^m_{ED} - \bar{Y}^f_{ED}\right)$ nor $\left(\bar{Y}^m_C - \bar{Y}^f_C\right)$ has changed, the same percentage of women are still working in the education sector in their early forties. For these women, decreasing their experience acquired at jobs in this sector will decrease their pay in that sector. This is because there is an additional positive return to the percentage of education experience for a woman working in the education sector. This change can be expressed as:

$$change\ in\ the\ wage\ gap\ due\ to\ change\ in\ years\ of\ experience\ in\ current\ industry$$
$$-\left(\gamma^*_{ED} * \Delta\overline{XY}^f_{ED}\right)$$

where $\overline{XY}^f_{ED}$ is the average percentage of years in the education sector of women who are currently working in that sector. In order to evaluate the magnitude of this term, we are required to make some assumptions about what happens to average experience for those currently working in the education sector. If we assume that this sub-population experiences the same change and average experience falls by 5 percentage points for women in education jobs, then the effect would be:

$$-\left(\gamma^*_{ED} * \Delta\overline{XY}^f_{ED}\right)\text{=-(.54*-.05) =.027}$$

Thus, the countervailing effect would be an increase in the wage gap of .027 log dollars. This partially offsets the first effect because women's experience is reduced relative to men in their sector of employment, which reduces their wage. Thus, if we hold industry of current employment constant and just change work experience, the wage gap decreases due to women working in more highly paid sectors but increases due to women having less relevant work experience. The overall direction of the effect on the wage gap depends on three things: first, the

relative magnitudes of the general returns to experience in each sector ($\beta^*_{ED}\ compared\ to\ \beta^*_C$); second, the return to current sector experience in the education sector (γ^*_{ED}); third, how much we assume average experience changes for those working in the education sector, i.e. the sector out of which we have shifted experience ($\Delta\overline{XY}^f_{ED}$). If this average falls more or less than the overall average of education sector experience, then the countervailing effect will be smaller or larger. Our total estimate in Table 8 for the impact of percentage of working years spent in the current-job industry shows that if women looked identical to men in terms of overall average job-specific experience, the countervailing effect would outweigh much of the positive effect of more general experience in higher-paying industries.

Next, consider a scenario where we change the distributions of both the industry of the current job and industry-experience for women. This can be thought of as changing the distribution of women across industries at every age between 22 and age 40-45, including the time of the SIPP survey. This type of change affects every term in the industry component of the explained wage gap:

$$change\ in\ wage\ gap\ due\ to\ changes\ in\ current\ and\ historical\ industry\ differences$$
$$= -\left(\delta^*_{ED} * \Delta\bar{Y}^f_{ED}\right) - \left(\delta^*_C * \Delta\bar{Y}^f_C\right) - \left(\beta^*_{ED} * \Delta\bar{X}^f_{ED}\right) - \left(\beta^*_C * \Delta\bar{X}^f_C\right) - \left(\gamma^*_{ED} * \Delta\overline{XY}^f_{ED}\right)$$
$$- \left(\gamma^*_C * \Delta\overline{XY}^f_C\right)$$

Suppose the distribution of women across industries becomes more similar to men at every age and hence women both work more often in construction relative to education at the time of the SIPP survey (age 40-45) and a higher percentage of their total work experience is in construction relative to education. In this case, the net effect of the first four terms in the wage gap equation will be negative, causing the wage gap to decline. This is because the return to working in construction is higher than the return to working in education and the return to general construction experience is higher than the return to general education experience.

The effect of each of the last two terms is ambiguous and depends on who moves across industries. Construction experience has risen on average for women but it will still matter whether those who arrive in the construction sector have below or above the mean construction experience level compared to those already working in construction. If they are at least average or above, then the final term will also be negative and contribute to reducing the wage gap.

However, if the new construction workers have below average levels of experience in the construction field, this term will be positive and raise the wage gap.

Likewise, education experience is now lower for women on average, but if enough low education experience women move to construction, then the average level of experience in education among those with education jobs may rise and the penultimate term may also be negative. However, the average could also fall if the effect of lower average education experience overall dominates or if women at or above the old average education experience level are the ones who leave the education sector. In this case, the last term would turn positive and contribute to increasing the wage gap, thus offsetting at least part of the wage gap decrease.

Consider the specific thought experiment where the percentage of experience in education falls by 5 percentage points and percentage of experience in construction goes up by a corresponding amount. However, average education experience for those women working in the education field rises by 5 percentage points, as does the average construction experience for those women working in the construction sector. Using our estimates of δ_{ED}^{*} $(not\ signficantly\ different\ from\ zero)$ and $\delta_{C}^{*} = .17$, the total effect on the wage gap would be:

$$= -(0 * -.05) - (.17 * .05) - (0 * -.05) - (.43 * .05) - (.54 * .05) - (.05 * .05) = -.060$$

Thus, the wage gap would decrease by .060 log dollars.

If instead there was no change in average education or construction experience for those working each sector, then the change in the wage gap due to the change in the distribution of general work experience would be:

$$= -(0 * -.05) - (.17 * .05) - (0 * -.05) - (.43 * .05) = -.03$$

Finally, if average education experience fell by .05 and average construction experience rose by .05 for those working in these sectors, the change in the wage gap would be:

$$= -(0 * -.05) - (.17 * .05) - (0 * -.05) - (.43 * .05) - (.54 * -.05) - (.05 * .05)$$
$$= -.006$$

Based on this example, we conclude that our effects reported in Tables 7, 8, and 9 cannot give a complete picture of how the wage gap would change if women had the same industry histories as men. If women changed their industry histories without changing their current industry distribution, this would decrease the wage gap by .043 log dollars, or 12.8% (see Table 8). If, at the same time, this change also produced industry histories in the sector of current employment that were the same as men's, there would be a countervailing effect that would increase the wage gap by .033 (see Table 8), as women's new industry-specific experience would now be mismatched with their current industry of employment. However, the magnitude of this countervailing effect is actually uncertain, as shown in our thought experiment above, and depends on how much changes in industry history impact the accumulated industry-specific experience of women currently working in each industry.

It is hard to imagine women changing their past industry distribution without changing their current industry distribution, and hence, the more complete thought experiment is to change both the industry histories and the industries of current jobs to be more like men. In this case, the mismatch problem lessens and, as shown above, we can construct scenarios where the countervailing impact of current sector industry experience decreases or even reverses. This depends on the relative experience of women who change industries. If industry switching happened such that current industry experience for women stayed the same relative to men in all sectors, as in the middle segment of our second thought experiment above, the combined effects of women being distributed more like men in the industry of their current job (.055 Table 8) and in the industry of their past jobs (.043 Table 8) would be to decrease the wage gap by .098 log dollars or 29%. Another way to describe this is to say that observed differences between men and women could explain up to 48.0% of the total wage gap due to an additional 9.6% being explained by industry-specific experience measures.

VI. Conclusion

A large literature has documented and analyzed the gender wage gap. Although the gap has narrowed considerably in the last 30 years, it is still present, and the literature differs in how much of the gap can be explained by observable characteristics. Much of the difference in men and women's earnings appears to be related to fertility decisions, and it is well established that mothers earn less than non-mothers. Using a unique data source that combines survey data from

the SIPP with employer history information from administrative data sources, we add to the literature by studying how employment history characteristics contribute to the difference in wages between men and women and mothers and non-mothers when they are middle-aged. Although current employer characteristics have been widely analyzed as potential contributors to the gender wage differential, data availability has so far prohibited the type of analysis that we undertake.

We find that men and women are distributed differently across industries both at the beginning of their careers and when they reach middle age. We use a Blinder-Oaxaca decomposition method to analyze the effect of these differences in employment histories on the middle-aged gender and motherhood wage differentials. We find that 12-13% of the gender gap can be explained by differences in industry history and 16-20% can be explained by the industry of the current job. However, the percentage of years an individual has spent working in his or her current industry works against explaining the wage gap. If women had similar levels of experience to men in the industries where they currently work, the wage gap would increase by 10%. This effect might be overcome, though, if women re-allocated themselves across industries during their whole careers and their accumulated levels of industry-specific experience were both in higher paying industries and matched the industry of their current jobs. In addition to industry history, percentage of years spent working explains 10-11% of the gender wage gap and SIPP job characteristics explain 9-10%. However firm size history and the number of jobs held are not found to significantly impact the gender wage gap.

The industry results are similar for the motherhood wage gap. Industry history differences can explain 10% of the gap and industry of the current SIPP job explains 11-13%, while years in industry of current job works against the wage gap (-8%). Among women however, other characteristics have a much larger impact than industry on the wage gap, with education, other SIPP job characteristics such as occupation, and percentage of years with positive earnings each explaining 20-30% of average wage differences.

Interestingly, both wage gaps are higher when administrative earnings data are used in place of survey earnings. This raises the interesting possibility that men's and women's wages have not converged as much as previously thought and highlights the need to repeat historical wage gap calculations with administrative data.

In the end, these thought experiments highlight the inability of this type of decomposition model to estimate the causal impact of changes in observable differences on the gender or motherhood wage gaps. Changes in the distribution of women workers across industries are both unlikely to be exogenous and likely to cause changes in the stock of experience among female workers in each industry. Since in many sectors, industry-specific experience generates a significant return above general work experience, the effect on the wage gap of changing where women work either at a point in time or repeatedly over a number of years is not completely knowable from these types of statistical results since it depends on which women move across sectors.

These results do offer some clues, however, to the slowdown in the convergence of male and female wages. Older women are unlikely to be able to completely overcome the impact of their industry experience histories, even as they accumulate experience in their current industry, and switching careers in mid-life comes at a cost of losing one's industry-specific experience, an important contributor to wage growth. Among younger women, if the highest ability women switch at young ages into higher-paying, male dominated industries, we would expect to see their wages converge towards men's wages. However if the women who remain behind in the lower paying industries are less attached to the labor force, this may drop the female advantage in years of experience in these industries and push the wage gap in the opposite direction. Which effect dominates is an empirical question that can only be measured with data on more recent cohorts.

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Table 1A. Industry Distribution of jobs held at ages 25 and 40, by gender

NAICS Sector Name and NAICS Code	Age 25				Age 40				Age 40-25	
	% of Men	% of Women	**Diff**	t-stat	% of Men	% of Women	**Diff**	t-stat	D-in-D	t-stat
Higher Percentage of Men at age 25										
Manufacturing	17.14	9.60	7.54	20.16	19.32	8.24	11.08	28.39	3.54	6.54
Construction	7.99	0.98	7.02	30.79	8.35	1.45	6.90	28.99	-0.12	-0.35
Wholesale Trade	4.97	2.90	2.07	9.45	6.18	2.86	3.32	14.50	1.25	3.96
Transp. & Wareh.	2.98	0.98	2.00	11.49	4.84	1.91	2.93	16.10	0.93	3.70
Other Government	7.00	5.30	1.70	8.25	2.04	1.15	0.89	4.13	-0.81	-2.73
Self-Employment	2.65	1.20	1.46	7.64	4.95	3.09	1.86	9.30	0.40	1.44
Public Admin	2.41	1.39	1.02	5.86	3.74	2.90	0.83	4.58	-0.19	-0.75
Adm. Sup., Waste Mgt.	*5.85*	*5.00*	*0.85*	*3.28*	*6.62*	*6.69*	*-0.08*	*-0.28*	*-0.93*	*-2.47*
Agriculture	1.12	0.30	0.83	8.66	0.93	0.43	0.50	5.05	-0.32	-2.34
Mining	0.93	0.22	0.71	9.44	0.60	0.11	0.49	6.29	-0.22	-1.99
Utilities	0.54	0.24	0.31	3.80	0.96	0.37	0.60	7.07	0.29	2.49
Similar Percentage of Men and Women at age 25										
Other Services	3.01	2.89	0.12	0.61	3.14	4.09	-0.95	-4.72	-1.07	-3.84
Arts, Entertm., Rec.	1.12	1.00	0.12	1.06	1.03	1.10	-0.07	-0.59	-0.18	-1.16
Real Est. & Rental	1.21	1.19	0.02	0.18	1.18	1.17	0.01	0.10	-0.01	-0.05
Mgt. of Companies	0.16	0.16	0.00	0.05	1.32	1.15	0.17	2.13	0.17	1.50
Information	1.91	2.05	-0.14	-0.88	2.79	2.01	0.78	4.68	0.92	3.99
Higher Percentage of Women at age 25										
Health C. & Social Asst.	3.06	12.28	-9.22	-28.37	5.57	20.06	-14.48	-42.65	-5.26	-11.19
Non-Earners	6.77	14.18	-7.41	-25.55	1.77	5.17	-3.41	-11.29	4.01	9.57
Finance & Insurance	2.77	6.68	-3.90	-16.81	3.19	5.74	-2.56	-10.58	1.35	4.02
Accomd. & Food	6.25	8.57	-2.32	-8.99	3.36	5.52	-2.17	-8.07	0.15	0.39
Education	2.56	3.94	-1.38	-5.97	4.06	9.00	-4.94	-20.50	-3.56	-10.66
Retail Trade	11.19	12.47	-1.28	-3.86	8.04	9.99	-1.95	-5.64	-0.67	-1.40
Prof., Scient., Tech.	3.01	3.93	-0.93	-4.23	5.14	4.96	0.18	0.79	1.11	3.51
Other										
Missing Industry	3.38	2.56	0.83	5.45	0.86	0.82	0.04	0.28	-0.79	-3.57
Foreign Firms	0.00	0.00	0.00	0.00	0.01	0.00	0.01	1.40	0.01	1.02
Total	100.00	100.00			100.00	100.00				
Obs: People	7,448	7,858			7,448	7,858				
Obs: Person-Job-Sector	17,274	16,202			16,579	16,592				
Obs: Person-Job	11,569	11,451			10,843	10,290				

Source: SIPP 2004 & 2008 respondents matched to W-2 earnings histories and Census Business Register of firms. Industry codes were crosswalked to 1997 NAICS. An observation is a person-job. If an individual worked for a firm that employed people in multiple NAICS sectors, we counted this job multiple times and weighted each observation by the percentage of total employees at the firm working in that particular NAICS sector.

Table 2A. Firm size distribution of jobs held at ages 25 and 40, by gender

Firm Size	Age 25				Age 40				Age 40-25	
	Men	Women	**Diff**	t-stat	Men	Women	**Diff**	t-stat	D-in-D	t-stat
Small firms										
1 to 9	10.93	9.12	1.81	4.51	8.05	8.60	-0.54	-1.33	-2.35	-4.10
10 to 25	9.97	8.90	1.07	2.72	8.56	8.12	0.44	1.08	-0.63	-1.12
26 to 50	8.16	7.20	0.96	2.67	7.62	6.13	1.48	4.04	0.52	1.02
Mid-size firms										
51 to 100	7.99	7.86	0.13	0.36	7.69	6.41	1.28	3.43	1.15	2.20
101 to 200	7.04	7.75	-0.71	-1.95	7.33	7.40	-0.07	-0.18	0.65	1.24
201 to 500	8.47	8.56	-0.09	-0.23	10.31	10.53	-0.21	-0.52	-0.12	-0.21
Large firms										
501 to 1000	5.13	6.33	-1.19	-3.44	6.80	8.47	-1.67	-4.73	-0.48	-0.97
1000+	32.44	34.26	-1.81	-2.71	40.09	41.10	-1.01	-1.49	0.80	0.84
missing	9.87	10.03	-0.16	-0.46	3.55	3.24	0.31	0.90	0.47	0.97
Total	100.00	100.00			100.00	100.00				
Obs: Jobs	10,874	9,975			9,860	10,191				
Obs: People	6,570	6,188			7,171	7,212				

Source: SIPP 2004 & 2008 respondents matched to W-2 earnings histories and Census Business Register of firms. An observation is a person-job.

Table 3A. Job Count distribution at ages 25 and 40, by gender

Job Count Cat	Age 25				Age 40				Age 40-25	
	Men	Women	**Diff**	t-stat	Men	Women	**Diff**	t-stat	D-in-D	t-stat
0	7.44	11.11	-3.67	-10.43	0.79	1.21	-0.42	-1.18	3.25	6.54
1-2	34.40	35.52	-1.12	-1.80	7.98	7.66	0.31	0.50	1.43	1.63
3-4	29.04	28.81	0.23	0.34	14.54	14.85	-0.31	-0.46	-0.54	-0.57
5-6	15.88	13.85	2.04	3.37	16.02	16.87	-0.86	-1.41	-2.89	-3.38
7-8	7.25	6.12	1.13	2.20	14.18	15.60	-1.42	-2.76	-2.55	-3.51
9-10	3.14	2.60	0.55	1.27	12.30	12.18	0.12	0.28	-0.43	-0.70
11-13	1.79	1.49	0.30	0.74	12.49	12.23	0.26	0.64	-0.04	-0.07
14+	1.06	0.51	0.55	1.24	21.71	19.39	2.32	5.21	1.76	2.79
Total	100.00	100.00			100.00	100.00				
Obs: People	7,448	7,858			7,448	7,858				

Source: SIPP 2004 & 2008 respondents matched to W-2 earnings histories and Census Business Register of firms. An observation is a person.

Table 4A. Average Female - Male Wage Difference by Age and Data Source

	Wage Difference by Source				Diff. between Sources	
Panel A. Female-Male Difference by Age	**DER**	t-stat	**SIPP**	t-stat	**DIFF-IN-DIFF**	t-stat
Age 25	-4.61	-6.28	--	--	--	--
Age 30	-8.07	-11.22	--	--	--	--
Age 40 (beginning of panel)	-14.19	-12.83	-11.51	-10.41	2.68	2.83
Diff-in-Diff Between Ages						
Age 30-25	-3.47	-3.37	--	--	--	--
Age 40-30	-6.12	-4.63	--	--	--	--
Panel B. Wage2 = Totearn{Source}/Total Reported hours						
Age 40 (beginning of panel)	-12.49	-11.25	-9.71	-8.74	2.79	2.92
Panel C. Wage3 = Totearn SIPP main job/Job hours						
Age 40 (beginning of panel)	-11.72	-10.6	-7.22	-6.53	4.50	-4.76
Diff-in-Diff between Wage types at age 40						
Wage2 - Wage1	1.70	1.78	1.81	1.90	--	--
Wage3 - Wage2	0.78	0.81	2.49	2.62		

Source: SIPP 2004 & 2008 respondents matched to W-2 earnings histories and Census Business Register of firms. An observation is a person.

Table 1B. Industry Distribution of jobs held at ages 25 and 40, by mothers/non-mothers

NAICS Sector Name and NAICS Code	Age 25				Age 40				Age 40-25	
	% of non-Moms	% of Moms	**Diff**	t-stat	% of non-Moms	% of Moms	**Diff**	t-stat	D-in-D	t-stat
Higher Percentage of non-Mothers at age 25										
Accomd. & Food	10.20	8.16	2.03	4.03	5.92	5.43	0.48	0.91	-1.55	-2.12
Adm. Sup., Waste Mgt.	6.28	4.68	1.60	3.46	7.39	6.54	0.86	1.75	-0.74	-1.11
Retail Trade	13.35	12.25	1.11	1.80	10.60	9.85	0.75	1.16	-0.36	-0.40
Information	2.75	1.87	0.88	3.13	2.46	1.91	0.55	1.85	-0.33	-0.81
Arts, Entertm., Rec.	1.55	0.87	0.68	3.50	1.39	1.03	0.36	1.78	-0.31	-1.11
Other Government	5.78	5.18	0.60	1.79	0.95	1.20	-0.25	-0.72	-0.85	-1.75
Other Services	3.37	2.77	0.59	1.65	3.35	4.26	-0.90	-2.39	-1.50	-2.87
Public Admin	1.85	1.27	0.58	2.03	3.31	2.81	0.49	1.64	-0.08	-0.20
Construction	1.35	0.88	0.47	2.20	1.49	1.44	0.05	0.21	-0.42	-1.36
Similar Percentage of non-Mothers and Mothers at age 25										
Finance & Insurance	7.02	6.59	0.43	0.90	6.54	5.56	0.97	1.92	0.54	0.77
Self-Employment	1.50	1.12	0.38	1.24	3.69	2.95	0.73	2.27	0.35	0.79
Prof., Scient., Tech.	4.21	3.87	0.34	0.84	6.65	4.58	2.06	4.85	1.72	2.94
Health C. & Social Asst.	12.49	12.23	0.26	0.36	17.62	20.61	-2.99	-3.91	-3.25	-3.10
Wholesale Trade	3.10	2.85	0.26	0.78	3.03	2.82	0.21	0.60	-0.05	-0.10
Utilities	0.26	0.23	0.03	0.31	0.53	0.33	0.20	1.70	0.16	1.03
Real Est. & Rental	1.20	1.19	0.01	0.03	1.54	1.08	0.46	2.04	0.45	1.46
Education	3.95	3.94	0.01	0.01	7.59	9.32	-1.73	-3.46	-1.74	-2.53
Mining	0.22	0.22	0.00	-0.02	0.09	0.11	-0.02	-0.27	-0.02	-0.18
Mgt. of Companies	0.13	0.16	-0.03	-0.23	1.36	1.10	0.25	1.76	0.29	1.44
Agriculture	0.24	0.31	-0.07	-0.57	0.39	0.44	-0.04	-0.33	0.03	0.15
Transp. & Wareh.	0.89	1.01	-0.11	-0.49	2.12	1.86	0.25	1.05	0.37	1.10
Manufacturing	9.10	9.72	-0.62	-1.09	8.81	8.11	0.70	1.17	1.32	1.60
Higher Percentage of Mothers at age 25										
Non-Earners	6.58	16.06	-9.48	-15.49	2.19	5.85	-3.66	-5.67	5.82	6.55
Other										
Missing Industry	2.61	2.54	0.07	0.26	1.00	0.78	0.22	0.77	0.15	0.38
Foreign Firms	0.00	0.00	0.00	-0.01	0.00	0.00	0.00	1.01	0.00	0.74
Total	100.00	100.00			100.00	100.00				
Obs: People	1,419	6,439			1,419	6,439				
Obs: Person-Job-Sector	3,321	12,881			3,199	13,393				
Obs: Person-Job	2,266	9,185			2,008	8,835				

Source: SIPP 2004 & 2008 respondents matched to W-2 earnings histories and Census Business Register of firms. Industry codes were crosswalked to 1997 NAICS. An observation is a person-job. If an individual worked for a firm that employed people in multiple NAICS sectors, we counted this job multiple times and weighted each observation by the percentage of total employees at the firm working in that particular NAICS sector.

Table 2B. Firm size distribution of jobs held at ages 25 and 40, by mothers/non-mothers

Firm Size	Age 25				Age 40				Age 40-25	
	non-Moms	Moms	**Diff**	t-stat	non-Moms	Moms	**Diff**	t-stat	D-in-D	t-stat
Small firms										
1 to 9	8.87	9.19	-0.32	-0.45	7.66	8.81	-1.15	-1.59	-0.83	-0.82
10 to 25	9.15	8.83	0.32	0.48	7.82	8.20	-0.38	-0.54	-0.70	-0.72
26 to 50	7.24	7.19	0.05	0.09	5.64	6.25	-0.60	-0.96	-0.66	-0.75
Mid-size firms										
51 to 100	8.27	7.75	0.52	0.83	5.59	6.60	-1.01	-1.56	-1.52	-1.69
101 to 200	7.66	7.77	-0.11	-0.17	7.61	7.35	0.26	0.39	0.38	0.40
201 to 500	7.71	8.79	-1.09	-1.51	8.44	11.02	-2.58	-3.45	-1.49	-1.43
Large firms										
501 to 1000	6.49	6.28	0.21	0.33	7.92	8.60	-0.67	-1.02	-0.88	-0.96
1000+	34.75	34.12	0.63	0.53	46.19	39.92	6.28	5.15	5.65	3.32
missing	9.86	10.07	-0.22	-0.36	3.11	3.27	-0.16	-0.26	0.05	0.06
Total	100.00	100.00			100.00	100.00				
Obs: Jobs	2,141	7,834			1,931	8,260				
Obs: People	1,263	4,925			1,363	5,849				

Source: SIPP 2004 & 2008 respondents matched to W-2 earnings histories and Census Business Register of firms. An observation is a person-job.

Table 3B. Job Count distribution at ages 25 and 40, by mothers/non-mothers

Job	Age 25				Age 40				Age 40-25	
Count Cat	non-Moms	Moms	**Diff**	t-stat	non-Moms	Moms	**Diff**	t-stat	D-in-D	t-stat
0	6.77	12.07	-5.30	-7.66	0.70	1.32	-0.62	-0.89	4.69	4.79
1-2	30.94	36.53	-5.59	-4.95	5.50	8.14	-2.64	-2.34	2.95	1.84
3-4	32.06	28.09	3.97	3.25	13.67	15.11	-1.44	-1.18	-5.41	-3.15
5-6	16.28	13.31	2.97	2.70	15.08	17.27	-2.19	-1.99	-5.16	-3.33
7-8	7.05	5.92	1.13	1.23	15.29	15.67	-0.38	-0.41	-1.51	-1.16
9-10	3.88	2.31	1.56	2.02	12.68	12.07	0.62	0.80	-0.94	-0.87
11-13	2.33	1.30	1.02	1.43	13.18	12.02	1.16	1.62	0.14	0.14
14+	0.70	0.47	0.24	0.31	23.89	18.40	5.49	7.10	5.25	4.82
Total	100.00	100.00			100.00	100.00				
Obs: People	1,419	6,439			1,419	6,439				

Source: SIPP 2004 & 2008 respondents matched to W-2 earnings histories and Census Business Register of firms. An observation is a person.

Table 4B. Mother - Non-Mother Wage Difference by Age and Data Source

	Wage Difference by Source				Diff. between Sources	
Panel A. Mother - Non-Mother Difference by Age	**DER**	t-stat	**SIPP**	t-stat	**DIFF-IN-DIFF**	t-stat
Age 25	-1.53	-1.86	--	--	--	--
Age 30	-3.76	-4.66	--	--	--	--
Age 40 (beginning of panel)	-6.90	-5.50	-6.505	-5.19	0.39	0.37
Diff-in-Diff Between Ages						
Age 30-25	-2.23	-1.94	--	--	--	--
Age 40-30	-3.13	-2.10	--	--	--	--
Panel B. Wage2 = Totearn{Source}/Total Reported hours						
Age 40 (beginning of panel)	-5.80	-4.61	-7.12	-5.67	-1.33	-1.22
Panel C. Wage3 = Totearn SIPP main job/Job hours						
Age 40 (beginning of panel)	-3.93	-3.13	-4.55	-3.63	-0.63	0.58
Diff-in-Diff between Wage types at age 40						
Wage2 - Wage1	1.10	1.02	-0.62	-0.57	--	--
Wage3 - Wage2	1.87	1.73	2.57	2.38		

Source: SIPP 2004 & 2008 respondents matched to W-2 earnings histories and Census Business Register of firms. An observation is a person.

Table 5: Oaxaca-Blinder Decomposition of SIPP Wage Differences
Summary of Average Wage Differences

Panel A Male-Female:

	Model 1: Industry history	Model 2: Add Firm Size	Model 3: Add Job Counts	Model 4: Add Job Tenure	Model 5: Add Firm Age
	1	2	3	4	5
Male Average Wage	3.0818***	3.0818***	3.0818***	3.0818***	3.0818***
	(0.0079)	(0.0079)	(0.0079)	(0.0079)	(0.0079)
Female Average Wage	2.7427***	2.7427***	2.7427***	2.7427***	2.7427***
	(0.0077)	(0.0077)	(0.0077)	(0.0077)	(0.0077)
Difference	0.3391***	0.3391***	0.3391***	0.3391***	0.3391***
	(0.0110)	(0.0110)	(0.0110)	(0.0110)	(0.0110)
Explained	0.1270***	0.1279***	0.1274***	0.1288***	0.1302***
	(0.0097)	(0.0097)	(0.0097)	(0.0098)	(0.0098)
Unexplained	0.2121***	0.2112***	0.2117***	0.2103***	0.2088***
	(0.0112)	(0.0112)	(0.0111)	(0.0112)	(0.0112)
N	15306	15306	15306	15306	15306

Panel B Non-Mother - Mother

	Model 1: Industry history	Model 2: Add Firm Size	Model 3: Add Job Counts	Model 4: Add Job Tenure	Model 5: Add Firm Age
	1	2	3	4	5
Non-Mothers Average Wage	2.8904***	2.8904***	2.8904***	2.8904***	2.8904***
	(0.0190)	(0.0190)	(0.0190)	(0.0190)	(0.0190)
Mothers Average Wage	2.7102***	2.7102***	2.7102***	2.7102***	2.7102***
	(0.0084)	(0.0084)	(0.0084)	(0.0084)	(0.0084)
Difference	0.1801***	0.1801***	0.1801***	0.1801***	0.1801***
	(0.0208)	(0.0208)	(0.0208)	(0.0208)	(0.0208)
Explained	0.1730***	0.1754***	0.1737***	0.1748***	0.1760***
	(0.0133)	(0.0133)	(0.0134)	(0.0135)	(0.0135)
Unexplained	0.0071	0.0048	0.0064	0.0053	0.0041
	(0.0167)	(0.0167)	(0.0168)	(0.0169)	(0.0168)
N	7858	7858	7858	7858	7858

Source: SIPP 2004 & 2008 respondents matched to W-2 earnings histories and Census Business Register of firms.

Table 6: Oaxaca-Blinder Decomposition of SIPP Wage Differences
Contribution of SIPP Job Characteristics

Panel A Male-Female

	Model 1: Industry history	Model 2: Add Firm Size	Model 3: Add Job Counts	Model 4: Add Job Tenure	Model 5: Add Firm Age
Explained	1	2	3	4	5
Occupation	-0.0024	-0.0018	-0.0009	-0.0003	-0.0011
	(0.0073)	(0.0073)	(0.0072)	(0.0072)	(0.0072)
Union Status	0.0074***	0.0073***	0.0073***	0.0073***	0.0073***
	(0.0012)	(0.0012)	(0.0012)	(0.0012)	(0.0012)
Duration of Jobs (Years)	0.0116***	0.0114***	0.0089***	0.0091***	0.0091***
	(0.0014)	(0.0014)	(0.0013)	(0.0014)	(0.0014)
Multi-Unit Company	0.0001	0.0001	0.0001	0.0001	0.0001
	(0.0003)	(0.0003)	(0.0003)	(0.0003)	(0.0003)
Firm Size (Employment)	0.0014	0.0012	0.0012	0.0012	0.0012
	(0.0009)	(0.0007)	(0.0008)	(0.0008)	(0.0008)
Job Type	0.0132***	0.0132***	0.0139***	0.0140***	0.0135***
	(0.0026)	(0.0026)	(0.0026)	(0.0026)	(0.0026)
Self-Reported Industry	0.0576***	0.0577***	0.0561***	0.0553***	0.0553***
	(0.0083)	(0.0082)	(0.0082)	(0.0082)	(0.0082)
N	15306	15306	15306	15306	15306

Panel B Non-Mother - Mother

	Model 1: Industry history	Model 2: Add Firm Size	Model 3: Add Job Counts	Model 4: Add Job Tenure	Model 5: Add Firm Age
Explained	1	2	3	4	5
Occupation	0.0375***	0.0369***	0.0367***	0.0365***	0.0362***
	(0.0061)	(0.0060)	(0.0060)	(0.0059)	(0.0059)
Union Status	-0.0039	-0.0038	-0.0038	-0.0038	-0.0038
	(0.0021)	(0.0021)	(0.0021)	(0.0021)	(0.0021)
Duration of Jobs (Years)	0.0096***	0.0094***	0.0086***	0.0086***	0.0087***
	(0.0023)	(0.0022)	(0.0022)	(0.0022)	(0.0022)
Multi-Unit Company	-0.0002	-0.0002	-0.0002	-0.0002	-0.0002
	(0.0003)	(0.0003)	(0.0003)	(0.0003)	(0.0003)
Firm Size (Employment)	0.0031	0.0019	0.0020	0.0020	0.0020
	(0.0016)	(0.0013)	(0.0013)	(0.0013)	(0.0013)
Job Type	0.0014	0.0013	0.0014	0.0015	0.0013
	(0.0013)	(0.0012)	(0.0013)	(0.0013)	(0.0013)
Self-Reported Industry	0.0197***	0.0198***	0.0197***	0.0196***	0.0197***
	(0.0055)	(0.0055)	(0.0055)	(0.0054)	(0.0054)
N	7858	7858	7858	7858	7858

Source: SIPP 2004 & 2008 respondents matched to W-2 earnings histories and Census Business Register of firms.

Table 7: Oaxaca-Blinder Decomposition of SIPP Wage Differences
Contribution of Work History

Panel A Male-Female:

	Model 1: Industry history	Model 2: Add Firm Size	Model 3: Add Job Counts	Model 4: Add Job Tenure	Model 5: Add Firm Age
Explained	1	2	3	4	5
Percent of years by industry	0.0397***	0.0394***	0.0381***	0.0401***	0.0433***
	(0.0104)	(0.0103)	(0.0103)	(0.0103)	(0.0103)
Percent of years in current industry	-0.0336***	-0.0334***	-0.0324***	-0.0325***	-0.0325***
	(0.0097)	(0.0097)	(0.0097)	(0.0096)	(0.0096)
% Years Positive Earnings	0.0315***	0.0314***	0.0359***	0.0348***	0.0354***
	(0.0025)	(0.0025)	(0.0027)	(0.0032)	(0.0032)
Firm Size (Employment)	--	0.0007	0.0009	0.0009	0.0004
	--	(0.0011)	(0.0010)	(0.0010)	(0.0011)
Jobs held betw. age 22 and time of	--	--	-0.0016*	--	--
SIPP job	--	--	(0.0008)	--	--
Jobs held betw. age 22 and time of	--	--	--	-0.0010	-0.0003
SIPP panel, by job tenure cat.	--	--	--	(0.0022)	(0.0022)
Firm Age	--	--	--	--	-0.0013
	--	--	--	--	(0.0016)
N	15306	15306	15306	15306	15306

Panel B Non-Mother - Mother

	Model 1: Industry history	Model 2: Add Firm Size	Model 3: Add Job Counts	Model 4: Add Job Tenure	Model 5: Add Firm Age
Explained	1	2	3	4	5
Percent of years by industry	0.0208***	0.0198***	0.0199***	0.0200***	0.0185***
	(0.0046)	(0.0047)	(0.0046)	(0.0046)	(0.0047)
Percent of years in current industry	-0.0139**	-0.0140**	-0.0139**	-0.0142**	-0.0141**
	(0.0050)	(0.0050)	(0.0050)	(0.0050)	(0.0049)
% Years Positive Earnings	0.0367***	0.0369***	0.0387***	0.0375***	0.0383***
	(0.0038)	(0.0038)	(0.0041)	(0.0048)	(0.0049)
Firm Size (Employment)	--	0.0049**	0.0048**	0.0050**	0.0058**
	--	(0.0018)	(0.0017)	(0.0018)	(0.0019)
Jobs held betw. age 22 and time of	--	--	-0.0026	--	--
SIPP job	--	--	(0.0016)	--	--
Jobs held betw. age 22 and time of	--	--	--	0.0008	0.0008
SIPP panel, by job tenure cat.	--	--	--	(0.0041)	(0.0041)
Firm Age	--	--	--	--	0.0002
	--	--	--	--	(0.0010)
N	7858	7858	7858	7858	7858

Table 8: Summary of Components of Male-Female Average Wage Differences

	Model 5: Add Firm Age			
Full Wage	**SIPP log dollars**	**SIPP % of gap**	**DER log dollars**	**DER % of gap**
Male Average Wage	3.0818***		3.2396***	
	(0.0079)		(0.0106)	
Female Average Wage	2.7427***		2.8549***	
	(0.0077)		(0.0104)	
Difference	0.3391***		0.3846***	
	(0.0110)		(0.0148)	
Explained	0.1302***	38.4%	0.1664***	43.3%
	(0.0098)		(0.0127)	
Explained Portion	**SIPP log dollars**	**SIPP % of gap**	**DER log dollars**	**DER % of gap**
Education (5 category)	-0.0030	-0.9%	-0.0019	-0.5%
	(0.0031)		(0.0031)	
Industry SIPP job	0.0553***	16.3%	0.0758***	19.7%
	(0.0082)		(0.0129)	
% of years in industry sectors	0.0433***	12.8%	0.0477**	12.4%
	(0.0103)		(0.0159)	
% of years in industry of current job	-0.0325***	-9.6%	-0.0388**	-10.1%
	(0.0096)		(0.0147)	
Other SIPP job characteristics	0.0302***	8.9%	0.0386***	10.0%
	(0.0079)		(0.0114)	
Other work history summary measures	-0.0012	-0.4%	-0.0025	-0.7%
	(0.0029)		(0.0046)	
% years working	0.0354***	10.4%	0.0430***	11.2%
	(0.0032)		(0.0046)	
N	15306		15306	

Source: SIPP 2004 & 2008 respondents matched to W-2 earnings histories and Census Business Register of firms.

Table 9: Summary of Components of Non-Mother - Mother Average Wage Differences

	Model 5: Add Firm Age			
Full Wage	**SIPP log dollars**	**SIPP % of gap**	**DER log dollars**	**DER % of gap**
Male Average Wage	2.8904***		3.0059***	
	(0.0190)		(0.0239)	
Female Average Wage	2.7102***		2.8217***	
	(0.0084)		(0.0114)	
Difference	0.1801***		0.1842***	
	(0.0208)		(0.0265)	
Explained	0.1760***	97.7%	0.1854***	100.7%
	(0.0135)		(0.0156)	
Explained Portion	**SIPP log dollars**	**SIPP % of gap**	**DER log dollars**	**DER % of gap**
Education (5 category)	0.0599***	33.3%	0.0585***	31.8%
	(0.0063)		(0.0070)	
Industry SIPP job	0.0197***	10.9%	0.0235**	12.8%
	(0.0054)		(0.0073)	
% of years in industry sectors	0.0185***	10.3%	0.0176**	9.6%
	(0.0047)		(0.0064)	
% of years in industry of current job	-0.0141**	-7.8%	-0.0146*	-7.9%
	(0.0049)		(0.0066)	
Other SIPP job characteristics	0.0442***	24.5%	0.0370***	20.1%
	(0.0068)		(0.0070)	
Other work history summary measur	0.0077	4.3%	0.0116	6.3%
	(0.0046)		(0.0074)	
% years working	0.0383***	21.3%	0.0457***	24.8%
	(0.0049)		(0.0070)	
N	7858		7858	

Source: SIPP 2004 & 2008 respondents matched to W-2 earnings histories and Census Business Register of firms.

Table 10: Industry Components of the SIPP Male-Female Wage Gap

	Coeff. Pooled Regression		Difference in Average		Explained wage gap	
	% of years of experience		% of years of experience		% of years of experience	
	(1) industry	(2) current ind.	(3) industry	(4) current ind.	(5) industry	(6) current ind.
AG	-0.136	0.298	0.006	0.003	-0.0008	0.0008
					(0.0007)	(0.0005)
Mining	0.242	-0.257	0.006	0.003	0.0014	-0.0007
					(0.0010)	(0.0009)
Utilities	0.104	0.130	0.007	0.007	0.0007	0.0009
					(0.0009)	(0.0010)
Construction	0.428	0.051	0.066	0.047	0.0281 ***	0.0024
					(0.0046)	(0.0036)
Manufacturing	0.093	0.056	0.119	0.094	0.0111 *	0.0053
					(0.0054)	(0.0042)
Wholesale	0.373	-0.019	0.032	0.010	0.012 ***	-0.0002
					(0.0022)	(0.0010)
Transportation	0.128	0.298	0.025	-0.005	0.0032	-0.0015
					(0.0021)	(0.0009)
Information	0.368	0.249	0.004	0.017	0.0015 *	0.0042 *
					(0.0007)	(0.0018)
FIRE	0.168	-0.043	-0.042	0.005	-0.007 *	-0.0002
					(0.0027)	(0.0007)
Real estate	0.294	0.356	0.000	-0.021	-0.0001	-0.0075 ***
					(0.0003)	(0.0020)
Prof/Sc/Tech	0.544	-0.161	-0.003	0.001	-0.0014	-0.0001
					(0.0013)	(0.0002)
Management	1.101	-0.245	0.001	0.001	0.0008	-0.0003
					(0.0006)	(0.0005)
Admin.	0.129	0.306	0.003	0.002	0.0004	0.0007
					(0.0003)	(0.0004)
Education	-0.127	0.540	-0.052	-0.043	0.0066	-0.023 ***
					(0.0048)	(0.0042)
Healthcare	0.144	0.102	-0.143	-0.113	-0.0206 *	-0.0116
					(0.0081)	(0.0069)
ARTS/other	0.030	0.551	0.000	0.001	-0.0000	0.0005
					(0.0001)	(0.0004)
Accom/Food	-0.005	0.361	-0.022	-0.011	0.0001	-0.0038 **
					(0.0017)	(0.0011)
Other serv	0.088	0.373	-0.010	-0.002	-0.0009	-0.0006
					(0.0007)	(0.0005)
Public	0.184	0.297	0.008	0.008	0.0014 *	0.0023 **
					(0.0006)	(0.0008)

SIPP 2004 & 2008 respondents matched to W-2 earnings histories and Census Business Register of firms. Results from Oaxaca-Blinder decomposition of male and female wages. Industry indicators for state/local govt., self-employment, missing sector, and foreign ownership were also included. However by construction there were no SIPP jobs in these categories and hence no corresponding current industry indicator so these categories are ommitted from this table.

Appendix Table 1A: Summary Statistics for Continuous Variables in Wage Equation

	Male		Female		Difference	
Variable name	Mean	Std. dev.	Mean	Std. dev.	Estimate	t-stat
Average Wage	28.36	37.26	19.71	18.61	8.65***	(18.059)
Average Log Wage	3.09	0.69	2.75	0.69	0.34***	(30.531)
age at panel	45.11	3.39	45.20	3.42	-0.09	(-1.673)
years married	14.61	8.58	15.63	9.11	-1.02***	(-7.151)
years divorced	2.02	4.37	2.80	5.28	-0.78***	(-9.960)
years widowed	0.05	0.68	0.16	1.38	-0.11***	(-6.450)
years with positive W-2 earnings	0.94	0.14	0.86	0.19	0.07***	(27.852)
years at current SIPP job	11.81	8.75	10.31	8.03	1.49***	(11.022)
years in sector:						
Agriculture	0.01	0.07	0.01	0.05	0.01***	(6.136)
Mining	0.01	0.06	0.00	0.03	0.01***	(7.806)
Utilities	0.01	0.09	0.00	0.05	0.01***	(6.062)
Construction	0.08	0.20	0.01	0.07	0.06***	(26.614)
Manufacturing	0.23	0.31	0.11	0.22	0.12***	(26.965)
Wholesale Trade	0.07	0.15	0.04	0.10	0.03***	(16.085)
Retail Trade	0.09	0.20	0.11	0.20	-0.02***	(-5.273)
Transportation & Wareh.	0.04	0.14	0.02	0.09	0.02***	(12.719)
Information	0.03	0.12	0.02	0.10	0.00*	(2.284)
Finance & Insurance	0.03	0.13	0.07	0.20	-0.04***	(-15.346)
Real Estate, Rental, Lease	0.01	0.06	0.01	0.06	-0.00	(-0.006)
Profes., Scient., Technical	0.05	0.14	0.05	0.14	-0.00	(-0.966)
Mgt. of Companies	0.01	0.03	0.01	0.03	0.00	(1.803)
Admin. Supt. & Waste Mgt.	0.05	0.11	0.04	0.10	0.00	(1.599)
Education	0.03	0.13	0.09	0.20	-0.05***	(-18.697)
Health Care & Social Assist.	0.05	0.16	0.20	0.30	-0.14***	(-36.855)
Arts, Entertainment, Rec.	0.01	0.05	0.01	0.05	-0.00	(-0.611)
Accomodation & Food	0.04	0.13	0.07	0.16	-0.03***	(-11.963)
Other Services	0.03	0.10	0.04	0.11	-0.01***	(-5.683)
Public Admin	0.03	0.13	0.03	0.11	0.01***	(3.791)
Other Government	0.04	0.13	0.03	0.09	0.02***	(8.683)
Self-Employment	0.03	0.08	0.02	0.07	0.00	(1.848)
Missing	0.01	0.03	0.01	0.03	0.00	(1.294)
Foreign Firms	0.00	0.00	0.00	0.00	0.00	(1.313)
years in firm of size:						
missing employment total	0.04	0.06	0.04	0.06	0.00	(0.692)
1-9 employees	0.08	0.15	0.08	0.15	-0.00	(-0.226)
10 to 25 employees	0.09	0.14	0.08	0.13	0.01***	(3.547)
26 to 50 employees	0.07	0.12	0.06	0.11	0.01***	(4.967)
51 to 100 employees	0.08	0.13	0.07	0.12	0.01***	(4.611)
101 to 200 employees	0.07	0.12	0.07	0.13	-0.00	(-1.007)
201 to 500 employees	0.09	0.15	0.10	0.15	-0.01**	(-3.180)
501 to 1000 employees	0.07	0.13	0.08	0.14	-0.01***	(-5.695)
1000+ employees	0.40	0.34	0.40	0.32	-0.01	(-1.323)
cumulative job count at:						
age 25	3.606146	2.901117	3.23001	2.644671	0.38***	(8.391)
age 30	6.162993	4.832125	5.49456	4.234577	0.67***	(9.106)
age 35	8.135471	6.441994	7.410678	5.497206	0.72***	(7.489)
first year of SIPP (age 40-52)	11.2497	8.76174	10.77657	7.546267	0.47***	(3.581)
Total observations	7485		7904		15389	

Source: SIPP 2004 & 2008 respondents matched to W-2 earnings histories and Census Business Register of firms. Industry codes were crosswalked to 1997 NAICS. An observation is a person-job.

Appendix Table 1B: Summary Statistics for Demographic Categorical Explanatory Variables in Wage Equation

	Black		No kids		1 kid		2 kids		3+ kids	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
no	91.89	88.09	78.44	83.27	83.18	83.64	65.47	62.51	72.91	70.58
yes	8.11	11.91	21.56	16.73	16.82	16.36	34.53	37.49	27.09	29.42
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
chi2	61.62		58.27		0.589		14.61		10.36	
p value	4.17e-15		2.29e-14		0.443		0.000132		0.00129	

Marital Status			Education level		
	Male	Female		Male	Female
never m.	11.69	11.91	< HS	6.17	4.89
married	58.45	52.13	HS grad	26.77	24.21
re-married	17.03	16.16	Some coll	36.04	39.62
divorced	12.32	18.16	Coll grad	19.73	21.01
widowed	0.51	1.65	Grad/prof.	11.30	10.28
Total	100.00	100.00	Total	100.00	100.00
chi2	160.6			41.32	
p value	1.11e-33			2.31e-08	

Source: SIPP 2004 & 2008 respondents matched to W-2 earnings histories and Census Business Register of firms. An observation is a person-job.

Appendix Table 1C: Summary Statistics for SIPP Job Characteristics Categorical Explanatory Variables in Wage Equation

Occupation	Male	Female
Managem.	12.99	9.70
Busin/Financial	3.04	5.32
Computer/Math	4.75	2.22
Architect/Engin.	4.73	0.78
Life, Phy, Social Sc.	1.37	0.96
Comm. & Social Serv.	0.96	1.66
Legal	0.68	1.26
Education	2.94	10.36
Arts/Design/Enter./Media	1.40	1.20
Health Pract.	2.13	9.73
Health Support	0.31	4.18
Protective Serv.	3.22	0.78
Food Prep & Serve	1.86	4.94
Build&Grounds Clean/Main.	3.31	2.62
Personal Care & Serv.	0.58	2.92
Sales	8.61	9.54
Office & Admin.	6.25	23.06
Farm,Fish,Forest	0.76	0.39
Constr. & Extract.	8.64	0.34
Install,Maint.,Repair	7.98	0.26
Production	12.91	5.29
Transportation	10.61	2.48
Total	100.00	100.00
chi2	4269.7	
p	0	

Industry	Male	Female
Agriculture	1.01	0.42
Mining	0.85	0.15
Utilities	1.94	0.60
Construction	9.68	1.40
Manufacturing	24.34	10.35
Wholesale Trade	4.94	2.82
Retail Trade	9.89	10.71
Transportation & Wareh.	6.46	2.41
Information	2.82	1.71
Finance & Insurance	3.58	7.06
Real Estate, Rental, Lease	1.24	1.30
Profes., Scient., Technical	6.37	5.34
Admin. Supt. & Waste Mgt.	3.72	3.10
Education	5.76	15.49
Health Care & Social Assist.	5.34	23.50
Arts, Entertainment, Rec.	1.25	1.18
Accomodation & Food	2.72	4.81
Other Services	3.34	3.77
Public Admin	4.76	3.88
Total	100.00	100.00
chi2	2615.1	
p	0	

Job Type	Male	Female
private/for profit	83.11	67.69
private/non-profit	4.72	13.18
local govt	6.83	11.96
state govt	3.27	5.41
fed. Govt	2.07	1.76
Total	100.00	100.00
chi2	576.6	
p	1.77e-123	

Union status	Male	Female
no	81.91	86.00
yes	18.09	14.00
Total	100.00	100.00
chi2	48.13	
p	3.99e-12	

Firm Size	Male	Female
< 25	15.53	16.39
25-99	12.80	11.71
100-499	14.97	14.24
500-999	6.26	7.84
>=1000	50.45	49.82
Total	100.00	100.00
chi2	20.89	
p	0.000333	

Multi-unit status	Male	Female
no	32.27	34.45
yes	67.73	65.55
Total	100.00	100.00
chi2	8.224	
p	0.00413	

Source: SIPP 2004 & 2008 respondents matched to W-2 earnings histories and Census Business Register of firms. An observation is a person-job.

Appendix Table 2A: Summary Statistics for Continuous Variables in Wage Equation, Mothers and Non-Mothers

	Non-Moms		Moms		Difference	
Variable	Mean	Std. dev.	Mean	Std. dev.	Estimate	t-stat
Average Wage	23.26	26.06	18.93	16.42	4.34***	(6.032)
Average Log Wage	2.90	0.72	2.72	0.68	0.18***	(8.503)
age at panel	45.44	3.49	45.15	3.40	0.29**	(2.902)
years married	8.25	8.88	17.26	8.33	-9.00***	(-35.089)
years divorced	2.64	5.48	2.83	5.23	-0.19	(-1.197)
years widowed	0.11	1.07	0.18	1.43	-0.07*	(-2.058)
years with positive W-2 earnings	0.93	0.15	0.85	0.20	0.08***	(18.376)
years at current SIPP job	11.32	8.42	10.09	7.93	1.22***	(5.032)
Years in Sector:						
Agriculture	0.00	0.04	0.01	0.05	-0.00	(-1.436)
Mining	0.00	0.03	0.00	0.03	0.00	(0.683)
Utilities	0.01	0.06	0.00	0.05	0.00	(1.032)
Construction	0.01	0.07	0.01	0.07	0.00	(0.448)
Manufacturing	0.12	0.23	0.11	0.22	0.01	(0.761)
Wholesale Trade	0.04	0.11	0.03	0.10	0.01	(1.774)
Retail Trade	0.10	0.20	0.11	0.20	-0.01	(-1.469)
Transportation & Wareh.	0.02	0.10	0.02	0.09	0.00	(0.167)
Information	0.03	0.11	0.02	0.10	0.01***	(3.446)
Finance & Insurance	0.08	0.20	0.07	0.20	0.01	(1.254)
Real Estate, Rental, Lease	0.02	0.08	0.01	0.06	0.01***	(3.327)
Profes., Scient., Technical	0.06	0.16	0.05	0.14	0.01**	(3.209)
Mgt. of Companies	0.01	0.03	0.01	0.03	0.00	(1.727)
Admin. Supt. & Waste Mgt.	0.04	0.10	0.04	0.10	0.00	(0.512)
Education	0.07	0.19	0.09	0.21	-0.02***	(-3.889)
Health Care & Social Assist.	0.18	0.29	0.20	0.31	-0.02*	(-2.339)
Arts, Entertainment, Rec.	0.01	0.05	0.01	0.05	0.00	(1.125)
Accomodation & Food	0.07	0.17	0.07	0.16	-0.00	(-0.307)
Other Services	0.03	0.10	0.04	0.12	-0.01	(-1.793)
Public Admin	0.03	0.12	0.03	0.10	0.01*	(2.268)
Other Government	0.03	0.09	0.03	0.09	0.00	(0.756)
Self-Employment	0.02	0.06	0.03	0.08	-0.01***	(-4.655)
Missing	0.01	0.03	0.01	0.03	-0.00	(-1.448)
Foreign Firms	0.00	0.00	0.00	0.00	-0.00	(-0.238)
Years in Firm of Size:						
missing employment total	0.04	0.05	0.04	0.06	-0.00	(-0.945)
1-9 employees	0.08	0.15	0.08	0.16	-0.01	(-1.429)
10 to 25 employees	0.08	0.13	0.08	0.13	0.00	(0.390)
26 to 50 employees	0.06	0.11	0.06	0.11	-0.00	(-0.293)
51 to 100 employees	0.06	0.11	0.07	0.12	-0.01	(-1.596)
101 to 200 employees	0.07	0.13	0.07	0.13	-0.00	(-0.662)
201 to 500 employees	0.09	0.14	0.10	0.16	-0.01***	(-3.539)
501 to 1000 employees	0.07	0.13	0.08	0.14	-0.00	(-1.268)
1000+ employees	0.44	0.32	0.39	0.32	0.04***	(4.553)
Cumulative Job Count at:						
age 25	3.73	2.81	3.12	2.59	0.60***	(7.468)
age 30	6.37	4.70	5.30	4.10	1.07***	(7.990)
age 35	8.43	6.10	7.18	5.33	1.25***	(7.160)
first year of SIPP (age 40-52)	11.90	8.31	10.53	7.34	1.37***	(5.749)
Total observations	1430		6474		7904	

Source: SIPP 2004 & 2008 respondents matched to W-2 earnings histories and Census Business Register of firms. Industry codes were crosswalked to 1997 NAICS. An observation is a person-job.

Appendix Table 2B: Summary Statistics for Demographic Categorical Explanatory Variables in Wage Equation

	Black		1 kid	2 kids	3+ kids
	Non-Moms	Moms	Moms	Moms	Moms
no	89.61	87.76	80.04	54.24	65.72
yes	10.39	12.24	19.96	45.76	34.28
Total	100.00	100.00	100.00	100.00	100.00
chi2	3.841				
p value	0.0500				

Marital Status			Education level		
	Non-Moms	Moms		Non-Moms	Moms
never m.	39.31***	5.40	< HS	2.26	3.12***
married	32.67	62.61***	HS grad	18.14	20.22***
re-married	10.72	13.96***	Some coll	34.43	39.13***
divorced	16.13	16.58***	Coll grad	28.81***	25.45
widowed	1.16	1.45***	Grad/prof.	16.35***	12.08
Total	100.00	100.00	Total	100.00	100.00
chi2	1197.3			133.3	
p value	6.03e-258			7.52e-28	

Source: SIPP 2004 & 2008 respondents matched to W-2 earnings histories and Census Business Register of firms. An observation is a person-job.

Appendix Table 2C: Summary Statistics for SIPP Job Characteristics Categorical Explanatory Variables in Wage Equation

Occupation	Male	Female
Managem.	13.88	8.78
Busin/Financial	7.53	4.83
Computer/Math	3.21	2.00
Architect/Engin.	0.98	0.74
Life, Phy, Social Sc.	1.53	0.83
Comm. & Social Serv.	1.60	1.68
Legal	2.02	1.09
Education	7.74	10.94
Arts/Design/Enter./Media	1.46	1.14
Health Pract.	8.72	9.95
Health Support	2.65	4.52
Protective Serv.	1.19	0.69
Food Prep & Serve	4.46	5.04
Build&Grounds Clean/Main.	1.74	2.81
Personal Care & Serv.	3.07	2.89
Sales	9.21	9.61
Office & Admin.	21.48	23.41
Farm,Fish,Forest	0.21	0.43
Constr. & Extract.	0.49	0.31
Install,Maint.,Repair	0.42	0.23
Production	4.25	5.52
Transportation	2.16	2.55
Total	100.00	100.00
chi2	114.9	
p	6.02e-15	

Industry	Male	Female
Agriculture	0.35	0.43
Mining	0.42	0.09
Utilities	0.91	0.54
Construction	1.74	1.32
Manufacturing	11.72	10.04
Wholesale Trade	2.72	2.85
Retail Trade	10.67	10.72
Transportation & Wareh.	2.23	2.45
Information	2.09	1.63
Finance & Insurance	7.25	7.01
Real Estate, Rental, Lease	1.74	1.20
Profes., Scient., Technical	7.25	4.92
Admin. Supt. & Waste Mgt.	3.21	3.08
Education	11.85	16.29
Health Care & Social Assist.	20.29	24.21
Arts, Entertainment, Rec.	1.53	1.11
Accomodation & Food	4.74	4.83
Other Services	3.91	3.74
Public Admin	5.37	3.55
Total	100.00	100.00
chi2	66.76	
p	0.000000158	

Job Type	Male	Female
private/for profit	68.83	67.44
private/non-profit	13.11	13.20
local govt	9.97	12.40
state govt	6.21	5.23
fed. Govt	1.88	1.74
Total	100.00	100.00
chi2	8.330	
p	0.0802	

Union status	Male	Female
no	87.45	85.68
yes	12.55	14.32
Total	100.00	100.00
chi2	3.045	
p	0.0810	

Firm Size	Male	Female
< 25	15.55	16.58
25-99	11.37	11.78
100-499	12.83	14.55
500-999	7.39	7.94
>=1000	52.86	49.15
Total	100.00	100.00
chi2	7.047	
p	0.133	

Multi-unit status	Male	Female
no	33.40	34.68
yes	66.60	65.32
Total	100.00	100.00
chi2	0.851	
p	0.356	

Source: SIPP 2004 & 2008 respondents matched to W-2 earnings histories and Census Business Register of firms. An observation is a person-job.

Appendix Table 3: Oaxaca-Blinder Decomposition of DER Wage Differences
Summary of Average Wage Differences

Panel A Male-Female

	Model 1: Industry history	Model 2: Add Firm Size	Model 3: Add Job Counts	Model 4: Add Job Tenure	Model 5: Add Firm Age
	1	2	3	4	5
Male Average Wage	3.2396***	3.2396***	3.2396***	3.2396***	3.2396***
	(0.0106)	(0.0106)	(0.0106)	(0.0106)	(0.0106)
Female Average Wage	2.8549***	2.8549***	2.8549***	2.8549***	2.8549***
	(0.0104)	(0.0104)	(0.0104)	(0.0104)	(0.0104)
Difference	0.3846***	0.3846***	0.3846***	0.3846***	0.3846***
	(0.0148)	(0.0148)	(0.0148)	(0.0148)	(0.0148)
Explained	0.1636***	0.1645***	0.1646***	0.1644***	0.1664***
	(0.0126)	(0.0126)	(0.0126)	(0.0127)	(0.0127)
Unexplained	0.2210***	0.2202***	0.2201***	0.2203***	0.2183***
	(0.0166)	(0.0166)	(0.0165)	(0.0165)	(0.0164)
N	15306	15306	15306	15306	15306

Panel B Non-Mother - Mother

	Model 1: Industry history	Model 2: Add Firm Size	Model 3: Add Job Counts	Model 4: Add Job Tenure	Model 5: Add Firm Age
	1	2	3	4	5
Non-Mothers Average Wage	3.0059***	3.0059***	3.0059***	3.0059***	3.0059***
	(0.0239)	(0.0239)	(0.0239)	(0.0239)	(0.0239)
Mothers Average Wage	2.8217***	2.8217***	2.8217***	2.8217***	2.8217***
	(0.0114)	(0.0114)	(0.0114)	(0.0114)	(0.0114)
Difference	0.1842***	0.1842***	0.1842***	0.1842***	0.1842***
	(0.0265)	(0.0265)	(0.0265)	(0.0265)	(0.0265)
Explained	0.1812***	0.1857***	0.1819***	0.1837***	0.1854***
	(0.0151)	(0.0152)	(0.0154)	(0.0156)	(0.0156)
Unexplained	0.0030	-0.0015	0.0023	0.0005	-0.0012
	(0.0239)	(0.0239)	(0.0239)	(0.0238)	(0.0238)
N	7858	7858	7858	7858	7858

Source: SIPP 2004 & 2008 respondents matched to W-2 earnings histories and Census Business Register of firms.

Appendix Table 4: Oaxaca-Blinder Decomposition of DER Wage Differences
Contribution of SIPP Job Characteristics

Panel A Male-Female

	Model 1: Industry history	Model 2: Add Firm Size	Model 3: Add Job Counts	Model 4: Add Job Tenure	Model 5: Add Firm Age
Explained	1	2	3	4	5
Occupation	0.0062	0.0069	0.0084	0.0098	0.0084
	(0.0105)	(0.0105)	(0.0104)	(0.0104)	(0.0104)
Union Status	0.0091***	0.0088***	0.0089***	0.0089***	0.0089***
	(0.0015)	(0.0015)	(0.0015)	(0.0015)	(0.0015)
Duration of Jobs (Years)	0.0131***	0.0127***	0.0074***	0.0069***	0.0071***
	(0.0018)	(0.0018)	(0.0017)	(0.0017)	(0.0017)
Multi-Unit Company	-0.0002	-0.0002	-0.0002	-0.0002	-0.0002
	(0.0004)	(0.0004)	(0.0004)	(0.0004)	(0.0004)
Firm Size (Employment)	0.0014	0.0012	0.0012	0.0012	0.0013
	(0.0011)	(0.0009)	(0.0009)	(0.0009)	(0.0009)
Job Type	0.0125**	0.0124**	0.0137***	0.0138***	0.0132***
	(0.0039)	(0.0039)	(0.0039)	(0.0039)	(0.0039)
Self-Reported Industry	0.0802***	0.0805***	0.0779***	0.0757***	0.0758***
	(0.0130)	(0.0130)	(0.0129)	(0.0129)	(0.0129)
N	15306	15306	15306	15306	15306

Panel B Non-Mother - Mother

	Model 1: Industry history	Model 2: Add Firm Size	Model 3: Add Job Counts	Model 4: Add Job Tenure	Model 5: Add Firm Age
Explained	1	2	3	4	5
Occupation	0.0354***	0.0344***	0.0336***	0.0337***	0.0333***
	(0.0065)	(0.0063)	(0.0063)	(0.0062)	(0.0062)
Union Status	-0.0047	-0.0046	-0.0046	-0.0046	-0.0046
	(0.0026)	(0.0025)	(0.0025)	(0.0025)	(0.0025)
Duration of Jobs (Years)	0.0101***	0.0097***	0.0061**	0.0055*	0.0056*
	(0.0027)	(0.0026)	(0.0023)	(0.0023)	(0.0023)
Multi-Unit Company	-0.0003	-0.0002	-0.0002	-0.0002	-0.0002
	(0.0004)	(0.0004)	(0.0004)	(0.0004)	(0.0004)
Firm Size (Employment)	0.0036	0.0015	0.0017	0.0017	0.0017
	(0.0020)	(0.0015)	(0.0016)	(0.0016)	(0.0016)
Job Type	0.0013	0.0012	0.0013	0.0013	0.0012
	(0.0013)	(0.0013)	(0.0013)	(0.0013)	(0.0013)
Self-Reported Industry	0.0232**	0.0233**	0.0233**	0.0235**	0.0235**
	(0.0074)	(0.0073)	(0.0073)	(0.0073)	(0.0073)
N	7858	7858	7858	7858	7858

Source: SIPP 2004 & 2008 respondents matched to W-2 earnings histories and Census Business Register of firms.

Appendix Table 5: Oaxaca-Blinder Decomposition of DER Wage Differences
Contribution of Work History

Panel A Male-Female

	Model 1: Industry history	Model 2: Add Firm Size	Model 3: Add Job Counts	Model 4: Add Job Tenure	Model 5: Add Firm Age
Explained	1	2	3	4	5
Percent of years by industry	0.0441**	0.0444**	0.0419**	0.0443**	0.0477**
	(0.0159)	(0.0158)	(0.0158)	(0.0158)	(0.0159)
Percent of years in current industry	-0.0410**	-0.0407**	-0.0389**	-0.0387**	-0.0388**
	(0.0147)	(0.0148)	(0.0147)	(0.0147)	(0.0147)
% Years Positive Earnings	0.0340***	0.0337***	0.0432***	0.0423***	0.0430***
	(0.0034)	(0.0034)	(0.0039)	(0.0046)	(0.0046)
Firm Size (Employment)	--	0.0000	0.0002	0.0002	-0.0003
	--	(0.0016)	(0.0015)	(0.0015)	(0.0016)
Jobs held betw. age 22 and time of SIPP	--	--	-0.0026	--	--
job	--	--	(0.0014)	--	--
Jobs held betw. age 22 and time of SIPP	--	--	--	-0.0029	-0.0020
panel, by job tenure cat.	--	--	--	(0.0034)	(0.0035)
Firm Age	--	--	--	--	-0.0002
	--	--	--	--	(0.0024)
N	15306	15306	15306	15306	15306

Panel B Non-Mother - Mother

	Model 1: Industry history	Model 2: Add Firm Size	Model 3: Add Job Counts	Model 4: Add Job Tenure	Model 5: Add Firm Age
Explained	1	2	3	4	5
Percent of years by industry	0.0182**	0.0161*	0.0164**	0.0167**	0.0176**
	(0.0062)	(0.0063)	(0.0062)	(0.0062)	(0.0064)
Percent of years in current industry	-0.0139*	-0.0140*	-0.0139*	-0.0147*	-0.0146*
	(0.0068)	(0.0067)	(0.0066)	(0.0067)	(0.0066)
% Years Positive Earnings	0.0435***	0.0436***	0.0529***	0.0454***	0.0457***
	(0.0052)	(0.0052)	(0.0060)	(0.0070)	(0.0070)
Firm Size (Employment)	--	0.0094***	0.0092***	0.0092***	0.0096***
	--	(0.0028)	(0.0027)	(0.0027)	(0.0028)
Jobs held betw. age 22 and time of SIPP	--	--	-0.0103***	--	--
job	--	--	(0.0029)	--	--
Jobs held betw. age 22 and time of SIPP	--	--	--	0.0013	0.0016
panel, by job tenure cat.	--	--	--	(0.0066)	(0.0066)
Firm Age	--	--	--	--	-0.0010
	--	--	--	--	(0.0013)
N	7858	7858	7858	7858	7858

Source: SIPP 2004 & 2008 respondents matched to W-2 earnings histories and Census Business Register of firms.